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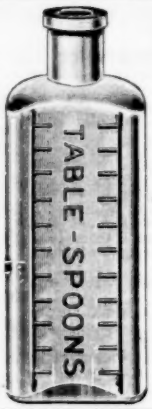


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### LECTURE I.

*Delivered May 3rd, 1927.*

THE basal metabolism of a man of normal average size involves an oxygen consumption of about 240 c.cm. per minute, or about 200 c.cm., according to Pickworth's recent figures,[1] whilst the actual rate of oxygen consumption in an athlete who is performing strenuous exertion may be maintained for a time at a value somewhat in excess of 4000 c.cm. per minute—that is, some 17 to 20 times the basal figure. Between these two extremes lie the figures which correspond to natural variations in bodily activity. The supply of oxygen to the tissues, and the removal of $CO_2$ from them, depend on the respiration and the circulation, and in trying to ascertain how it is that these two systems meet the demands of the tissues we cannot treat them as independent factors, for the one is but the complement of the other. If I discuss the question of the breathing first it is only because a consideration of the factors responsible for the general regulation of the circulation involves an extension of arguments primarily developed to account for the regulation of the breathing.

In thinking of increased bodily activity we are often apt unconsciously to restrict our attention to muscular work of at least moderate severity, and here the accompanying changes in respiration and circulation force themselves on our notice in the shape of panting and increased pulse-rate. We perhaps forget for the moment how much the respiratory exchange and energy output of the body may be altered by changes in activity which we should ordinarily call trivial. These changes may indeed appear trivial, and we may not be sensible ourselves of any alterations in our breathing or circulation, yet there is no difficulty in proving by careful observation that there is in reality no alteration in the metabolism of the body, however slight, without concomitant changes in the respiration and circulation.

#### FACTORS INVOLVED IN REGULATION OF THE BREATHING.

The original paper of Haldane and Priestley [2] on the regulation of the breathing showed that the main factor which determined the degree of activity of the respiratory centre was apparently the precise tension of $CO_2$ in the arterial blood reaching it. A natural corollary to this is the proposition that the activity of the respiratory centre is proportional to the mass of $CO_2$ produced by the body and carried to the lungs, and we have therefore the fundamental conception that an exact quantitative correlation of the ventilation of the lungs with the metabolism of the body as a whole is brought about by chemical means.

An example of the delicacy with which the breathing is correlated with small variations in the $CO_2$ production in the body is afforded by some experiments made a short time ago by Priestley and myself [3] in which we followed in detail the behaviour of the breathing after the ingestion of a considerable quantity of sugar by a person at complete rest. At the start of the experiment the subject's metabolism was basal. After the sugar had been swallowed the respiratory exchange and respiratory quotient soon began to rise, the maximum values being shown in about half an hour, after which the figures diminished gradually until the basal metabolism was resumed again after the lapse of two hours and a half. The rise of oxygen consumption was slight, that of the $CO_2$ output being considerably greater. The volume of air breathed per minute showed a perfectly definite rise and fall which ran closely parallel to the changes in $CO_2$ production, and the parallelism became still more obvious if the effective amount of air which actually reached the pulmonary alveoli was calculated as distinguished from the total amount of air breathed, some of which never penetrates to the part of the lungs in which respiratory interchange between blood and air occurs. The results of one of these experiments are given below.

| Time. | Relative figures. | | |
|---|---|---|---|
| | $O_2$ absorbed per minute. | $CO_2$ produced per minute. | Effective alveolar ventilation. |
| 10.30 | 100 | 100 | 100 |
| 10.38 | 75 g. cane sugar ingested. | | |
| 11.7 | 112 | 141 | 143 |
| 11.37 | 110 | 130 | 134 |
| 12.7 | 107 | 122 | 127 |
| 12.38 | 98 | 103 | 109 |
| 1.8 | 100 | 101 | 99 |

The fact that $CO_2$ might be acting on the respiratory centre simply in virtue of its properties as an acid was suspected from the start; indeed, this point of view was definitely maintained by Haldane and myself in an explanation which we suggested to account for the changes in the breathing associated with severe muscular exercise to which I shall return in a moment, but the real justification for the view which is now held, that the respiratory centre is sensitive to changes in the hydrogen-ion concentration in the arterial blood, and that $CO_2$ only affects the centre in so far as it influences the hydrogen-ion concentration, was not obtained by Hasselbalch until 1912,[4] and this theory has been further confirmed in the resting subject by a study of the effects observed in experimental acidosis and alkalosis. In addition to this we have perfectly clear evidence, as a result of investigations on human subjects, that the ventilation of the lungs can also be definitely influenced by deficiency of oxygen as well as by changes in body temperature, though the stimulus afforded by deficiency of oxygen may be totally ineffective if the $CO_2$ pressure or hydrogen-ion concentration of the blood is sufficiently depressed. The study of the coördination of the respiration with changes in bodily activity demands therefore an inquiry into the effects of that activity on the hydrogen-ion concentration, the oxygen pressure, and the temperature of the arterial blood passing to the centre.

#### EFFECT OF SEVERE MUSCULAR WORK ON THE RESPIRATORY CENTRE.

In attempting to form an estimate of the degree to which these factors may be responsible for the hyperpnœa associated with increased bodily activity it is simplest to begin with the question of the hydrogen-ion concentration, as we know more about this than the other two factors, and to consider in the first instance what happens during severe muscular work. Here the picture is an exaggerated one, it is true, but this helps to render some of the facts the more obvious.

Assuming for the moment that the respiratory centre is affected only by changes in hydrogen-ion concentration in the blood, and that such changes are caused during muscular work solely by an increased rate of $CO_2$ production, we should expect that the hyperpnœa of muscular work would be accompanied by a rise in alveolar and arterial $CO_2$ pressure, and that on stopping the exercise the alveolar $CO_2$ pressure would return to its normal resting value as the hyperpnœa died down. Haldane, Priestley, and I were under the impression that this actually occurred

during light muscular work, but it was certainly not true if the work was so severe for the subject that he could only keep it up for a limited time. What Haldane and I [8] actually found in these circumstances was that when the work stopped the alveolar $CO_2$ pressure fell in the course of some minutes to a figure considerably below its normal resting value, and that the latter value was only slowly regained in the course of the next hour or so. The fact that the breathing continued in spite of this reduction of the alveolar $CO_2$ pressure below the normal resting value showed us that something else in addition to $CO_2$ pressure must be acting as a stimulus to the respiratory centre, and we suggested that the explanation was to be found in the fact that lactic acid was produced in the muscles during the severe exertion and escaped into the blood. This view was founded on a suggestion already made by Boycott and Haldane [9] to account for the influence of deficiency of oxygen, which they regarded as due to the formation of lactic acid in the tissues as a result of deficient oxidation. Subsequent investigations showed that the theory could not be maintained in the case of simple deficiency of oxygen, but it was justifiable in the case of severe muscular work, for, apart from older observations bearing on the subject, the original paper of Fletcher and Hopkins [7] on the production of lactic acid in isolated frog's muscles during anaerobic contraction, and its disappearance subsequently in the presence of oxygen, had been published two years previously. We regarded the respiratory centre as responding to what might be called the "total acidity" of the blood to which free $CO_2$ would contribute. If therefore lactic acid was present in the blood less free $CO_2$ would be required to stimulate the respiratory centre. During the severe exercise lactic acid would escape into the blood stream owing to the activity of the muscles outrunning the supply of oxygen furnished by the blood. The respiratory centre would therefore receive an excessive stimulus, for not only would the active muscles be supplying to the blood stream a far larger amount of $CO_2$ than during rest, but in addition lactic acid would be accumulating in the blood. The hyperpnœa during the exertion would consequently be excessive, with the result that some of the $CO_2$ normally held in the form of a dissociable combination in the blood and tissue fluids would be expelled. On resuming rest the blood would still be charged with lactic acid, and the alveolar $CO_2$ pressure would therefore be considerably lower than the normal resting value, but with the gradual elimination of the lactic acid from the blood the normal value would slowly be regained, $CO_2$ being retained in the body during this period to make good the amount expelled from dissociable combinations during the heavy muscular exertion.

### THE RÔLE OF LACTIC ACID.

This view as we stated it now sounds crude, but nevertheless it was substantially correct. It must be remembered that it was put forward before Hasselbalch's work justified the strict statement that the respiratory centre responded to changes in the hydrogen-ion concentration of the blood, neither were the full facts known regarding the conditions governing the absorption of $CO_2$ by the blood, nor had the physicochemical factors governing the hydrogen-ion concentration in the blood been clearly defined. Support was given to the hypothesis when Ryffel [8] showed by analysis that great excess of lactic acid was present in the blood during severe muscular work and that the excess disappeared slowly after the work was over, and Miss Christiansen, Haldane, and I [9] proved that severe muscular work greatly reduced the capacity of the blood to combine with $CO_2$, the normal capacity being slowly regained during subsequent rest pari passu with the gradual resumption of the normal resting $CO_2$ pressure in the alveolar air.

Our knowledge in recent years has advanced rapidly. Far greater precision has been reached in our ideas regarding the hydrogen-ion concentration in the blood and the variations to which this is liable, while A. V. Hill,[10] Meyerhof, Embden, and their colleagues have raised an imposing superstructure on the foundations laid by Fletcher and Hopkins. As a result we now recognise that the immediate source of energy exhibited in a muscular contraction only involves the liberation of lactic acid from some carbohydrate precursor in the muscle, oxygen utilisation and $CO_2$ production being limited to a subsequent recovery process, in which a large proportion of the lactic acid is re-formed into the carbohydrate precursor by means of the energy derived from a secondary oxidation process. The extent to which lactic acid will accumulate in the active muscles, and thence pass into the blood and other tissues of the body, should depend on the speed of the recovery process, which in its turn will be influenced by the availability of oxygen at the time.

This enables us to get a clearer idea of what happens when severe muscular work is done for a short time. During the work, owing to the blood stream being insufficient to satisfy the demands, the lactic acid formed in the anaerobic phase of muscular contraction cannot be compensated for sufficiently rapidly by oxidative recovery, and, as A. V. Hill, Long, and Lupton have clearly shown, not only does lactic acid accumulate in the tissues and blood—and in most surprising amount in violent exertions—but in addition an oxygen debt is incurred during the work which is only gradually repaid during subsequent rest, when the oxygen-supply becomes adequate to ensure the oxidation of part of the lactic acid and the reconversion of the remainder into the precursor from which it came. The lactic acid as it is formed will combine with base derived from the salts of weaker acids; sodium bicarbonate may serve as the source of this, but Hartree and Hill [11] agree with Meyerhof in believing that a far more effective source may be found in the combination of sodium or potassium with protein in the active tissues. The result of this buffering action is that the actual change in hydrogen-ion concentration, though large from the biological standpoint, is far smaller than might be anticipated from the amount of lactic acid formed.

### THE PRODUCTION OF HYPERPNŒA.

In addition to the effect produced in this way by lactic acid accumulation we must remember that the greatly increased $CO_2$ production is also helping to raise the hydrogen-ion concentration in the blood, and it is not surprising therefore that panting should be violent in really severe muscular exertion. The accelerated removal of $CO_2$ from the body in consequence of the hyperpnœa tends to keep down the concentration of free $CO_2$ in the blood, and the net result of the interaction between lactic acid, sodium protein, and sodium bicarbonate will be, as Miss Christiansen, Haldane, and I proved and A. V. Hill has pointed out, that the amount of base available for combining with $CO_2$ as bicarbonate will be reduced. The respiration is therefore called upon not only to remove the $CO_2$ actually formed by the increased metabolic activity, but, in addition, to expel the $CO_2$ set free as the sodium bicarbonate concentration in the blood is diminished. So great may be the demands made on the respiration from this cause that during the exertion it may not be possible to meet them in full, and the violent panting continues for a time after the work stops, but the respiratory centre now quickly gets the better of the situation and the obvious hyperpnœa subsides.

We are accustomed to regard the hydrogen-ion concentration of the blood as proportional to the ratio of free $CO_2$ to bicarbonate. At the stage we have now reached, a short time after the work stops the blood and tissues are still loaded with lactic acid, for the oxidative removal of this lactic acid takes a long time. The bicarbonate concentration in the blood is still far below normal, and this in itself tends to keep the hydrogen-ion concentration of the blood above normal, but the hyperpnœa which is induced by this maintains the alveolar $CO_2$ pressure at a low level, and thus nearly compensates for the reduction of the bicarbonate; a balance has, in fact, been struck with

the breathing slightly exaggerated owing to incomplete compensation, though not appreciably to the subject. As the lactic acid is removed $CO_2$ is retained in the body to combine with sodium as it becomes available till the normal level of bicarbonate in the blood is re-established, the amount retained being the same as that expelled from combination during the muscular exertion. As the bicarbonate level rises in the blood the ventilation of the lungs diminishes pari passu and the alveolar $CO_2$ pressure and the concentration of free $CO_2$ in the arterial blood increase, until finally, after the lapse of an hour to an hour and a half, the disturbance caused by the muscular work has disappeared and the normal resting conditions have been re-established.

### EXPULSION OF $CO_2$ FROM THE BODY DURING SEVERE EXERCISE.

As I have said, Haldane and I tried to deduce the state of affairs from observations on the changes in the alveolar air, changes which affected the respiratory quotient as well as the gas pressures. Some years later I introduced a simple method by which continuous records of the total respiratory exchange could be obtained, and this made it possible to follow in detail the variations in the volume of air breathed, in the oxygen absorption, and in the $CO_2$ output, even in experiments involving severe muscular work. Using this method it was possible to verify our previous inferences—namely, that during severe muscular work, and for a short time after it stopped, there was an abnormally great expulsion of $CO_2$ from the body with a respiratory quotient well above 1·0. With the subject at rest after the exercise this high respiratory quotient soon fell to an abnormally low one, the actual rate of $CO_2$ production becoming disproportionally low as compared with the oxygen absorption, the return to normal or approximately normal values taking place gradually in the next hour and a half. Confirmatory evidence was thus obtained of the retention of $CO_2$ in the body after the exercise was over to compensate for the excess expelled from dissociable combinations during the work. Haldane, Yandell Henderson, Schneider, and I [12] obtained data of this type after severe muscular exertion at a high altitude to which we had become acclimatised, though it may be urged that the factor of reduced atmospheric oxygen pressure ought to be taken into account. This objection cannot, however, be maintained against the recent and extensive investigations of A. V. Hill, Long, and Lupton, which have afforded a more complete picture of the respiratory changes during and after muscular work.

### HYDROGEN-ION CONCENTRATION IN THE BLOOD AND IN THE CELLS OF THE RESPIRATORY CENTRE.

I must, however, admit that a number of objections have been raised to the view I have just given. I suppose that most people will agree that what really determines the activity of the respiratory centre is the condition, say the hydrogen-ion concentration, actually prevailing at the moment within the cells themselves of that centre, a point upon which Gesell [13] has laid great stress in recent years. But though the hydrogen-ion concentration within the cells of the respiratory centre, whatever its precise value may be, no doubt determines its exact quantitative response, the question that immediately faces us is whether or not we are justified in inferring that changes in the hydrogen-ion concentration of the blood reaching that centre so alter the condition within its cells that we can account for the variations in the breathing that accompany changes in the activity of the body.

It by no means follows that the quantitative changes of hydrogen-ion concentration in the cells of the centre strictly conform in degree or in time relations with changes in the hydrogen-ion concentration of the blood with which it is supplied. Another factor comes into play, as Jacobs has shown,[14] and that is the differential rate at which $CO_2$ or undissociated $H_2CO_3$, the hydrogen-ion and anions may penetrate into the cell from the immediate environment of the tissue fluids or blood. It would seem that the extreme facility with which $CO_2$ can penetrate into the cell offers an explanation of the fact that not only the respiratory centre but also the vasomotor centre are stimulated on perfusion to a greater degree by solutions containing free $CO_2$ in solution than by solutions of the same hydrogen-ion concentration containing no free $CO_2$. The same explanation will account for the occurrence of hyperpnœa after the intravenous injection of sodium bicarbonate,[15] since the reaction between this substance and the blood proteins will cause the liberation of a certain amount of $CO_2$.

It is quite intelligible that in the early stage of severe muscular work the natural limitations of the respiratory muscles may hinder the ventilation of the lungs from mounting as high as would be anticipated from the rise of hydrogen-ion concentration, but Barr[15] has put forward a more difficult proposition, for he has shown that after moderately severe exercise of short duration, sufficient however to cause a marked reduction in the $CO_2$ carrying power of the blood, the breathing may diminish in spite of the fact that the hydrogen-ion concentration in the arterial blood is still high, if not increasing, as reckoned by the usual methods. I cannot help feeling that when changes are occurring so rapidly as they do after the stop of muscular work the explanation of this anomaly may be found in the differential permeability of the cells of the respiratory centre to $CO_2$ and other molecules or ions, on the lines suggested by Jacobs's work. The general theory of the relation of hydrogen-ion concentration to the activity of the respiratory centre is in harmony with so many facts that a negation of the hypothesis on the basis of certain apparent exceptions demands the most careful and detailed scrutiny before it can be accepted. Gesell adopts the sounder attitude in attempting to reason out from the available information what will happen within the cells of the respiratory centre when changes, and perhaps gross ones, occur in the arterial blood. In the long run the hydrogen-ion concentration within the cells of the respiratory centre should vary in the same sense as the hydrogen-ion concentration in the arterial blood, and in examining this question we might, I think, be wiser to study gentler muscular exercise, when equilibrium can be reached and maintained, rather than severe muscular exercise when we encounter rapid and great fluctuations in the physico-chemical conditions in the blood. All I can hope to do within the limits of this lecture is to indicate that when judged broadly the behaviour of the respiration during severe muscular work does in fact conform with the changes in reaction of the blood which we should infer from the modern conception of the lactic acid theory of the development of muscular energy.

### EFFECT OF MODERATE MUSCULAR WORK ON THE RESPIRATORY CENTRE.

Let us now turn to the question of what happens when a person performs work which, though reasonably hard, can be kept up for a considerable time without fatigue. In this case there is certainly some accumulation of lactic acid in the blood, but the figure reached never approaches that found in very severe muscular exertion. Haldane and I, in our early work on the alveolar air changes resulting from prolonged exercise or cross-country running, found ourselves forced to the conclusion that a balance must fairly soon be struck between lactic acid production and its removal, and believed that whilst lactic acid was accumulating in the blood up to this equilibrium concentration a certain amount of $CO_2$ would be displaced from its combination as bicarbonate. Such a change would imply that the hyperpnœa would at first be considerable, but would decrease somewhat as the balance was attained and the excess $CO_2$ liberated from combination in the process was eliminated from the lungs. Pembrey and Cook's experiments [17] on "second wind" certainly pointed strongly in this direction. Campbell, Hobson, and I [16] also obtained further evidence supporting this view, which is in agreement with Pembrey's more

recent observations,[19] when we were able to show by measurements of the respiratory exchange that during long-continued and moderately hard work an unduly high respiratory quotient might be found in the early stages of the work and that $CO_2$ production and hyperpnœa were at a maximum at this stage, though the respiratory quotient soon fell back to a value well within the normal range and the hyperpnœa diminished distinctly, the $CO_2$ production being definitely reduced below its initial value. Little further change occurred during the rest of the work, and it seemed therefore that the balance had been struck between lactic acid formation and its removal. The conception of this condition of balance has been further developed by A. V. Hill and his colleagues in what they call the "steady state" of muscular exercise, and it seems clear that not only the behaviour of the breathing, but also the limited degree of oxygen debt in this form of work can be in the main explained by the lactic acid theory of the development of muscular energy and the influence of increased $CO_2$ production and lactic acid formation on the hydrogen-ion concentration of the blood. The state of affairs differs in degree, but not in essential nature from that found in very severe muscular work; in the latter case the oxygen requirements, as distinct from the oxygen that can be absorbed and supplied to the muscles, are so excessive that the steady state cannot be attained.

Can we assume that the same argument can be applied in quite light muscular work—say, walking at three to four miles an hour—such as we are accustomed to do in everyday life? Haldane, Priestley, and I thought that in such cases the increase of stimulus to the respiratory centre was furnished by rise of $CO_2$ pressure alone. In those days we were under the impression that significant amounts of lactic acid were not formed so long as the work was quite light. At the slower rates of walking alveolar air analyses seemed to show a rise of alveolar $CO_2$ pressure which was sometimes at least adequate to account for the increased breathing as judged from experiments in which hyperpnœa was caused by breathing air to which $CO_2$ had been added, though this was not the case at the faster rates of walking. These results are, however, subject to a criticism that has been made by Krogh and Lindhard,[20] who have pointed out that alveolar air analyses made by the Haldane-Priestley method must afford figures for the $CO_2$ pressure which are unduly high owing to the unavoidable time occupied in making the essential forced expirations, and that though this error may be negligible when at rest it becomes significant when the $CO_2$ production is greatly increased by muscular work. This criticism is valid, though the authors probably over-estimated the magnitude of the error, and it will be referred to again in my second lecture.

It is possible, therefore, that Haldane and I were misled as to the degree to which the alveolar $CO_2$ pressure rises in light muscular work. This seems to be corroborated by A. V. Hill, Long, and Lupton,[19 21] for they have found a definite though slight increase of lactic acid in the blood whilst walking at three to four miles an hour. If this is so we should expect to find the true alteration in the alveolar $CO_2$ pressure insufficient to account for the increased breathing, since the change in hydrogen-ion concentration in the blood would be in part attributable to the effects of lactic acid. As we cannot place implicit confidence in analyses of the alveolar air alone, Mr. W. H. Owles and I have tried to confirm the results of the lactic acid analyses by direct estimations of the bicarbonate in the blood. After sitting at rest for an hour in the laboratory in the post-absorptive condition we withdrew a sample of blood from a vein in the arm and subsequently took another sample after we had walked for half an hour at a pace of three or three and a half miles an hour. Coagulation was prevented by adding oxalate and formation of lactic acid owing to glycolysis was hindered by the addition of sodium fluoride (Evans [22]). Both samples were then brought into equilibrium with air containing the same concentration of $CO_2$ at 38° C., the content of $CO_2$ combined in the blood as bicarbonate being then analysed. In two experiments we found the following results:—

| Experiment. | Pace in miles per hour. | $CO_2$ pressure in mm. Hg with which blood was equilibrated. | C.cm. combined $CO_2$ per 100 c.cm. blood. |
|---|---|---|---|
| 1 | 2·9 | 39·9 | 46·8 (B) |
| | | 40·0 | 47·2 (A) |
| 2 | 3·4 | 38·9 | 45·4 (B) |
| | | 38·9 | 46·6 (A) |

(B) = Before exercise. (A) = After exercise.

It will be seen that the exercise caused no fall in the $CO_2$ combining power of the blood; indeed, there seems to have been a slight increase. In view of this result I feel that I should like further information before committing myself to any definite view regarding the precise physicochemical changes which accompany the small increase of hydrogen-ion concentration in the blood during gentle exercise.

### INFLUENCE OF FACTORS OTHER THAN HYDROGEN-ION CONCENTRATION.

The influence of the other two factors which must be taken into account during muscular work is less easy to define. The fact that as one ascends from sea level to a high altitude the breathing progressively increases and the alveolar $CO_2$ pressure progressively falls in the resting subject, effects which are known to be attributable to the decreased atmospheric oxygen pressure, seems to imply that we must regard the respiratory centre as being influenced all the time not only by the hydrogen-ion concentration in the arterial blood, but by the oxygen pressure as well. Provided that the arterial oxygen pressure can be kept up to its normal value during muscular work no difficulty will arise. Muscular work, however, leads to a great increase in the rate at which blood traverses the lungs and to a great reduction in the oxygen saturation of the venous blood entering the lungs, and as the distribution of oxygen in the different alveoli seems to be by no means even, some parts of the lung being at any moment less adequately ventilated than others, we may well believe that it will be difficult for the blood to get completely saturated with oxygen in its passage. If so, the effect of deficiency of oxygen will make itself felt on the respiratory centre and will exaggerate the hyperpnœa. Various observations show that we have to reckon with this effect. The benefit which has been recorded in the past as resulting from breathing oxygen during arduous work favours this view, and quantitative evidence has been furnished by the experiments of A. V. Hill, Long, and Lupton, which have led them to agree that some degree of reduction of the oxygen saturation in the arterial blood during very severe work is responsible for prejudicial effects on the cerebral and cardiac systems which set a limit to the amount of oxygen that can be absorbed when breathing air, a limit which can be readily passed when the subject breathes an oxygen-rich atmosphere. Deficiency in the saturation of the arterial blood with oxygen is therefore a real factor during severe work, but as yet there are insufficient data to indicate how hard the work must be for this deficiency to become significant, though this does seem to depend definitely on the physical fitness and training of the subject. Information is badly needed on this point, and it is particularly desirable that trials should be made with both trained and untrained subjects.

Deficiency of oxygen in the arterial blood will excite the respiratory centre and therefore increase the hyperpnœa, but the increased elimination of $CO_2$ in consequence of this will, by reducing the hydrogen-ion concentration of the blood, oppose this action, and a balance may therefore be struck with the hyperpnœa somewhat greater and the hydrogen-ion concentration somewhat lower than would otherwise be the case. As, however, increased rate of breathing caused by deficiency of oxygen tends to be accom-

panied by shallowness of respiration the ventilation of the lungs may be less effective than one would anticipate.

Difficult though it may be to define clearly the influence of deficiency of oxygen during muscular work our knowledge as to the possible effects on the respiration of changes of body temperature resulting from increased metabolism is even vaguer. An increase of body temperature in a normal resting person caused by exposure to an unduly high environmental temperature results in hyperpnœa in excess of what would be expected from the increased metabolism due to the high body temperature and a fall in alveolar $CO_2$ pressure, an effect that appears to be attributable to the fact that blood of abnormally high temperature reaches the respiratory centre. As is well known the body temperature, as judged by the readings of rectal thermometers, is increased by muscular work, but this fact need not necessarily imply that the temperature of the blood reaching the brain is above normal since the warm blood returning from the active parts of the body will be mixed in the heart with relatively cool blood coming back from the skin. If, as seems probable, the general regulation of heat production and heat loss so as to preserve the body temperature within due bounds is largely dependent on the effects exerted by slight changes of blood temperature on some centre in the brain, situated perhaps in the thalamic region, the fact that heat loss is increased by vascular changes in the skin and by sweating during muscular work may well be an indication that the temperature of the blood reaching the brain is higher than it is at rest. I have several times thought that I could detect some increase of the hyperpnœa during muscular work, as well as alterations of the alveolar $CO_2$ pressure after the work, which were attributable to a rise of temperature. In any case if the temperature factor does actually come into play its influence on the respiratory centre will resemble that of deficiency of oxygen, and like that it will tend to be opposed by the reduction of hydrogen-ion concentration which will result from the accentuation of the hyperpnœa.

### THE NERVOUS FACTOR IN COÖRDINATION OF BREATHING WITH CHANGES IN BODILY ACTIVITY.

I have now devoted a great deal of time to a discussion of the influence on the breathing of changes in the arterial blood, and beyond casual reference to the respiratory centre I have apparently treated the part played by the nervous system itself with scant courtesy. In point of fact what I have really done is to assume the function of the nervous system. After all, when we are considering the coördination of the breathing with changes in bodily activity we are, if I may put it in that way, dealing with a reflex arc in which the afferent side has been in the main replaced by direct excitation of the effector nervous centre by chemical and physical stimuli reaching it through the blood stream. From that limited region of the brain that we call the respiratory centre the passage of efferent nervous impulses ensures the simultaneous and coördinated activity of all the respiratory muscles; it is impossible to conceive that this object could be attained if those muscles, distributed as they are over a wide region of the body, were individually and directly influenced by variations in the composition of the blood which reached them. Then what is the peculiar advantage of the direct physicochemical stimulus to the centre?

It is clear that if the breathing is to conform with changes in the metabolism the pace must somehow be set by the organs whose activity varies. Haldane and Priestley showed that the connecting link was apparently supplied by the direct influence of $CO_2$, the principle end-product of tissue metabolism, on the respiratory centre, transmission of the requisite stimulus taking place through the blood stream and not through afferent nerves. For $CO_2$ pressure in the blood we may now have substituted hydrogen-ion concentration, and we may have added to that such factors as deficiency of oxygen and even body temperature, and yet the fundamental conception holds good. Provided that alterations in the activity of the organs of the body impress on the blood stream certain types of chemical or physical change to which, as has been abundantly shown by experimental investigation, the respiratory centre is exquisitely sensitive, the quantity of air breathed must of necessity be correlated with the varying metabolism of the body. The coördination of the respiration is intimately bound up with the preservation of the hydrogen-ion concentration in the blood and tissues within certain narrow limits. As muscular work increases in severity lactic acid may play a more and more prominent part in raising the hydrogen-ion concentration, and the effects of deficiency of oxygen and rise of temperature may be superadded, but the very fact that increased breathing by eliminating $CO_2$ at a faster rate tends to reduce the hydrogen-ion concentration and so to counteract the influence of these factors ensures that a balance will be struck so long as the metabolism is within reasonable bounds, a balance which implies on the one hand that the hydrogen-ion concentration will not rise unduly, and on the other that the $CO_2$ produced by the active tissues will be effectively expelled—and appropriate expulsion of $CO_2$ means the maintenance of an adequate oxygen concentration in the lungs. The balance is only unattainable in the severer forms of exertion when the limits of respiratory and cardiac activity are reached while the muscles can still continue in functional activity in consequence of their capacity for the anaerobic development of energy.

While, however, we may recognise that the main stimulus to the respiratory centre is afforded by chemical or physical alterations in the blood with which it is supplied we must be careful not to forget that that centre is also played upon by impulses conveyed by nervous channels. I am referring neither to the reflex effects on the respiration which we encounter every time we cough, sneeze, or swallow, nor to the temporary alterations which result from certain forms of cutaneous stimulation or pain. What I have in mind is the constant influence exerted by afferent impulses passing up the vagus nerves from the lungs themselves. If these nerves are severed increase of the chemical stimulus still provokes an increase in the breathing, but the response of the respiratory centre is not as complete as it is normally, for though the breathing may increase in depth there may be but an inadequate change in rate. The actual conversion of the inspiratory phase of the breathing into the expiratory phase and vice versa as breath follows breath is largely determined by the passage of nervous impulses up the vagus nerves, which are initiated by inflation or deflation of the lungs, the moment at which this conversion shall become effective being dependent on the magnitude of the chemical stimulus at the time and the vigour with which the respiratory centre is acting in consequence.[18] The effect of these impulses is apparently to convert the natural rhythm of response of the respiratory centre to the existing chemical stimulus, with its uneconomical prolongation of the inspiratory and, perhaps, of the expiratory phases, into a rhythm which is not only more economical of energy when the breathing is quiet, but also permits of far greater latitude when the breathing is exaggerated, for the very fact that the vagal impulses induce the prompt conversion of the one phase of a breathing movement into the other means that when the stress comes it can be met by an increase of both depth and frequency of the breathing. This reflex influence exerted through the vagus nerves is accentuated by various factors, but from our present standpoint the most important of these is deficiency of oxygen. The hyperpnœa caused by breathing air containing an excess of $CO_2$ (simple effect of increased hydrogen-ion concentration) involves as a rule a far greater alteration in the depth of the breathing than in the rate, while mere depression of the oxygen concentration in the air breathed provokes an increase in the rate of the breathing rather than in the depth, and we can well

understand that maximum hyperpnœa is found under experimental conditions when the two stimuli are combined.

When we consider the means by which the different functions of the body are coördinated we are apt, according to our bias, to lay stress either on the part played by the nervous system or on some factor, chemical or physicochemical, transmitted through the blood stream. In part this depends on our point of view at the moment, but in favouring one aspect we are in danger of neglecting the other. If we reflect on the behaviour of the breathing under different conditions of rest and activity we cannot fail to appreciate, I think, the harmonious coöperation of the two methods. Each has its own peculiar sphere; there is no antagonism but only mutual assistance. The quantitative response of the respiratory centre which manifests itself in alterations of the volume of air entering and leaving the lungs is primarily to be attributed to the direct stimulus afforded by physicochemical changes in the arterial blood which reaches it, changes which are directly due to the varying metabolism of the different organs of the body. But this response can only attain its full value when its rhythm is influenced by impulses transmitted up the vagus nerves as the lungs vary in volume, while the coördinated activity of the inspiratory and expiratory muscles is ensured by their nervous connexion with the respiratory centre.

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BELFAST CHILDREN'S HOSPITAL.—Mrs. Harold Barbour, wife of the Minister of Commerce in the Northern Parliament, has offered to subscribe £10,000 to the fund for the erection of a new children's hospital at Belfast. The new hospital will cost approximately £100,000, of which £25,000 is required for the out-patient department. It is proposed, however, to postpone the rebuilding of this department for a short time.

THE LATE DR. M. S. W. GUNNING.—The death is announced of Dr. Montague Shirley Wyatt Gunning, of Sheffield. Born in London in 1864, he was the son of Thomas Wyatt Gunning, barrister-at-law, and was educated at Christ Church, Oxford, and at University College Hospital. He took the Scottish triple diploma in 1888, and served for a time as ship's surgeon in the P. and O. On taking up general practice he worked at Montrose and later at Marborough, near Leicester, and from 1904 to 1909 he was assistant ophthalmic surgeon to the Leicester Infirmary. For the last ten years of his life he was county oculist to the Derbyshire Education Committee, and practised as an oculist at Sheffield. Dr. Gunning was an experienced entomologist, and was interested in many other branches of natural history, as well as in music. For some years before the war he held a captain's commission, serving with the 2nd North Midland Field Hospital. His wife died some months before him, and he leaves one son.

# DIET AND ACCESSORY FOOD FACTORS
## IN RELATION TO PREVENTION OF DISEASES OF THE TEETH.*


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ALL are, I hope, familiar with the debt the dental profession owes to the late Prof. G. V. Black. It is, however, only his epoch-making "Investigation into the Chemical and Physical Characters of the Teeth" to which I would here refer, in which he showed that the molar teeth were more fully calcified than the incisors by about 2 per cent., though molars are from 6 to 30 times more subject to decay than the different incisors. The accuracy of this analysis was confirmed by Sir Charles Tomes in England, and Black concluded that—

"neither the density nor the percentage of lime salts, nor the strength, is in any degree a factor in predisposing the teeth to caries, or in hindering its inception or progress."

In another way Tomes further confirmed Black's findings. He analysed two sets of teeth to ascertain the percentage of salts.

"In one set the third molars were largely affected by caries, and incipient decay existed between many of the teeth; while in the other set, although much worn by attrition, the teeth were quite free from caries. The analysis gave 71·4 per cent. of salts in both cases."

Yet, even to the present day, theories are brought forward to explain why the teeth are not sufficiently or properly calcified, and these quite erroneous theories with regard to calcification have been used to explain the fundamental cause of dental caries! In view of the verified facts, could anything be a greater or more misleading waste of time?

### STRUCTURE OF THE ENAMEL.

Let me now refer to the microscopic structure of the enamel. Leon Williams, in his unexcelled research on the pathology of enamel, showed that defects in structure "such as pits, grooves, fissures, pigmentations, granular and amorphous enamel, are common in the lower animals," whose teeth we know are practically free from caries. Moreover, with the aid of the finest lenses, and the highest magnification, added to his own almost inimitable skill and care in the preparation of sections, he was unable to discover any difference or degenerative change in the microscopic structure of the enamel of the teeth of modern civilised man, as compared with that of his remote ancestors of thousands of years ago. He noted, too, that, in his judgment, "the more imperfectly formed teeth—so far as inherent structure was concerned—and he meant by that the proportion of lime salts which were contained or anything other than the grosser defects, such as were found in enamel, in a perfectly healthy mouth, would never decay, while, in an unhealthy mouth—and by unhealthy he meant those conditions inimical to the preservation of the teeth—in such an unhealthy mouth the most perfectly formed tooth would never be able to resist decay." Of course, we dentists are all familiar with the obvious, we all frequently see hypoplastic teeth which have not decayed throughout a lifetime, while we see the most perfect teeth gradually becoming ravaged by the disease. Indeed, in one and the same mouth we often see hypoplastic incisors persisting in not becoming carious, while the premolars and second molars, though perfectly formed and free from hypoplasia, succumb to decay.

### CHEMICAL COMPOSITION OF THE ENAMEL.

Now let us consider the enamel from the chemical point of view. It has long been known that it contains

* A review of recent medical and dental research, delivered at the Academy of Medicine, New York, and at other cities in U.S.A. and Canada on a lecturing tour primarily organised by the California State Dental Association.

little or no organic matter. With the best technique that science can devise, however, it is estimated that enamel contains 1 per cent. of organic matter. Now what and where is this "organic matter" in the enamel? According to Dr. Leon Williams and Mr. H. C. Mallison, it is to be found in the cuticle surrounding the enamel prism, and with regard to its chemical nature we are indebted to Prof. W. E. Geis for the information that it is a sclero-protein like Naismith's membrane, with which it is continuous before that membrane gets stripped from the surface of the enamel. According to Prof. Geis and Dr. Leon Williams this sclero-protein is possessed of considerable elasticity, and this might well be regarded as a sufficient explanation of its use. Nevertheless, this trace of organic matter intrigues some investigators. They assume that it possesses some mysterious vitality. Some even claim that the highly complex phenomena associated with immunity in the blood may be possessed by this 1 per cent. of organic matter which is firmly imbedded in the inorganic enamel. They appear to assume that antibodies presumably blessed with the power of exerting a specific restrictive or destructive action on the bacteria in the fermenting carbohydrates outside the tooth, are exuded from this sclero-protein! and this, notwithstanding the fact that in the earliest stages of caries it is just this part of the enamel, containing a trace of organic matter, which appears to facilitate the diffusion of acid through the enamel and allow of the decalcification of the interprismatic substance. The theory of immunity as exhibited in the blood with regard to bacteria is rational, no doubt, but the theory of immunity in enamel to the action of acid is not worthy of the dental profession.

### THE DENTINE IN RELATION TO IMMUNITY.

We know that dentine is a hard substance chiefly of a calcareous nature, subject, like enamel, to decalcification by acid. We know definitely that it contains living organic matter in the dentinal tubules. But what does this undoubted organic matter do when the acids and bacteria associated with the carious process break through the enamel? Does it exhibit the phenomena associated with immunity? Most assuredly it does not. It is presumed, and no doubt correctly, that the translucent zone indicates a vital reaction, but it seems to have remarkably little effect in preventing the progress of decay. Indeed, we *know* that instead of resisting their onslaught the dentinal fibrils furnish invading bacteria with relatively favourable channels for the destruction of the dentine. If we know that the 28 per cent. of organic matter in the dentine does more harm than good with regard to resistance to the carious process, may it not be that the less we talk nonsense about the immunity of enamel the better?

### THE RÔLE OF ACCESSORY FOOD FACTORS IN THE PREVENTION OF CARIES.

In my early investigations it became evident that there were several accessory food factors of great importance from the point of view of the prevention of caries, irregularities of the teeth, tartar, and pyorrhœa. Thus it seemed to me that the physical consistency of the food, when of such a nature that it required crushing and disintegration between the teeth, was often a factor helping in no small degree the cleansing of such parts of the enamel as were subjected to friction. But not all foods which required crushing were detergent in their effects. It was obvious that many prepared or denaturalised foods, such as biscuits, toffee, and chocolate, did not by any means leave the teeth clean. Rather was it found that foods such as these tended to cling about the teeth and remain in the crevices. In a general way it was found that the more detergent foods were of a fibrillar nature, and in the case of vegetables this fibrillar substance was usually the carbohydrate known as cellulose. Other adjuvants to the cleansing of the mouth, though not accessory food factors, were noted, such as mucus, which formed a slippery coating on the surface of the enamel, thus facilitating the removal of foods. Similarly, the solvent and flushing action of the saliva was taken into account, together with such accessory food factors as stimulated these secretions. Acids, pungent, aromatic, and stimulating principles were referred to, and the belief expressed that the constant withholding of these latter accessory food factors might give rise to atrophy of the salivary glands. It soon became evident that the accessory food factors to which I have referred were not only instrumental in maintaining oral hygiene, but that they ministered also to alimentary hygiene in a similar way. Note was specially made of the value of innutritious cellulose. These ideas have of late received considerable confirmation. Thus Dr. Percy R. Howe has shown that animals with intestinal derangement are quickly got into a healthy state by adding cellulose in the form of filter paper to their diet, and Dr. Wm. Cramer and Dr. A. N. Kingsbury have pointed out that in animals deprived of vitamin A the mucous glands atrophy and the alimentary canal becomes unhealthy. To be more explicit they say that—

"in a normal animal the intestinal bacteria are restricted to the central lumen of the intestine," but lack of vitamin A deranges the alimentary canal, "the intestinal bacteria penetrate between the villi into the crypts of Lieberkühn and into the mucous glands of the cæcum, which they fill and where they proliferate."

In recent years many physiologists and biochemists have paid attention to one set of accessory factors sometimes referred to as stimulative in their mode of action. It is, however, extremely regrettable that they should have concentrated their attention so exclusively on these accessory food factors now known as vitamins, since, at least with regard to oral hygiene and the development of the jaw, the other accessory food factors are in practice very much more important, because it would appear that in civilised communities it but rarely happens that food as consumed is so thoroughly deprived of vitamins as to cause any trouble at all, or at least any specific disease. How little vitamin is required may be indicated by reference to the—

"experiments of Rohmann, who has done much pioneer work in this field of research. This investigator claims to have been able to satisfy the nutritive requirements of mice with rations prepared by mixing a number of isolated and purified food components. His animals not only showed increase of body-weight from such diets, but were actually sufficiently well nourished to produce young."

It has since been claimed, however, that he failed to use sufficient care in insuring the purity of the components of his food mixture. But who is going to trouble to secure specially prepared vitamin-free foods, particularly considering that in an ordinary mixed meal the expense would be quite prohibitive?

A further indication with regard to how little vitamin is required may be gleaned from the classical experiments of Sir Gowland Hopkins. He found that in the case of rats, although they declined and died on a diet carefully purified (of vitamin), yet the addition of a very small daily allowance of milk, the total solids of which amounted to only 4 per cent. or less of the whole food eaten, induced normal and continual growth. As a sufficiency is better than excess, we might infer from experiments on rats that 96 per cent. of our foods ought to be vitamin free. However, if less than 4 per cent. of a food like milk containing vitamins *restores* an animal to health after having been completely deprived of these substances, is it not rational to conclude that even less is required to prevent animals losing their health?

It would really appear that, except perhaps in the case of scurvy, the rôle of vitamins is only of academic interest, and, as far as dentists are concerned, of no practical importance whatever. We never see, nor are we required to treat, patients in England suffering from beri-beri, xerophthalmia, rickets, or scurvy, nor are we called upon to give advice with regard to general arrested growth, as distinguished from growth

in the jaws, dependent upon the absence of vitamin A in the diet. Nevertheless, it may be well to review some recent speculations and experiments with regard to vitamins and the diseases of the teeth. This is perhaps particularly desirable at present, because in medical circles at least, misguided investigation has distracted attention from the other more important accessory food factors, and the old and fallacious belief that the lack of calcification or the bad quality of the tooth is the cause of the prevalence of caries has been revived.

### THEORIES OF THE ÆTIOLOGY OF RICKETS.

Before referring specially to the teeth, it may be well to recall some of the fanciful ideas with regard to the causation of rickets which more recently have been abandoned. Not so many years ago the theory that rickets was a deficiency disease resulting from lack of fat-soluble A in the diet was widely accepted, even though Prof. Noel Paton and his colleagues in what is known as the "Glasgow school" showed that puppies could be healthily reared when vitamin A was carefully excluded from the diet, and, moreover, that rickets frequently appeared in children whose diet was relatively rich in this vitamin. It has, of course, been shown that rickets is not a deficiency disease resulting from lack of vitamin A, although it may now be contended that irradiated cholesterol, the so-called vitamin D, helps to prevent or cure the disease. Then it was shown that rickets was almost non-existent when the beneficent effect of sunlight was not withheld and as its curative effects on rickets were necessarily admitted, the hypothesis was put forward that the sunlight mobilised the vitamins, the absence of which had been presumed to be the cause of the trouble. In other words, the sunlight mobilised the little army of vitamins which was not there! It is now perhaps more generally believed that as far as a dietetic factor is concerned, the disease is the result of a positive cause, such as excess of unsuitable carbohydrates in the diet of young children, resulting in intestinal derangements. Nevertheless, the vitamin enthusiasts, presumably on account of the curative effect of cod-liver oil, now claim that the disease results from the absence of vitamin D.

When first we were introduced to the vitamin theories, we were told that these precious substances could only be manufactured by plants, and we were regaled with fairy tales about the green diatoms and algæ in the sea which manufactured these vitamins to be consumed and stored by little fish, but not used up, then consumed and stored by bigger fish but still not used up, and these in turn were devoured by the cod and the precious vitamins stored in their livers. Now it is admitted that all this fairy tale is hypothetical, as with the aid of ultra-violet light from the sun or elsewhere even human beings can manufacture this vitamin and pass it into the intestine through the bile duct. If, however, this be admitted, then it follows that vitamin D is not necessarily an accessory food factor at all; but that it is produced as the result of normal metabolism under hygienic conditions.

### THE VITAMINS IN RELATION TO THE TEETH.

The assumptions made with regard to vitamin A and the causation of rickets were soon followed by similar assumptions with regard to hypoplasia in the teeth. It was pointed out, however, that with regard to the deciduous teeth, which become carious so generally, the number of hypoplastic teeth did not amount to 1 in 100, and thus that the astounding frequency of caries in the milk teeth could not be attributed to predisposition to the disease as a result of hypoplasia. Moreover, experiments were made with puppies which showed that the enamel of teeth which was hypoplastic when the first part of the crown was formed, became normal when fat-soluble vitamins were deliberately excluded from the diet after the hypoplastic part of the enamel had been formed, while, on the other hand, the enamel did not become hypoplastic even although there was no vitamin A in the diet. Since it has been shown that lack of vitamin A is not the cause of rickets, I fancy similarly even enthusiastic vitaminists have abandoned the vitamin A deficiency theory of dental hypoplasia.

Naturally, I am not an opponent of theories which claim that accessory food factors are of importance, but a review of the facts brought forward in recent years indicates that except in so far as vitamins may stimulate the glands of oral hygiene, they appear to be of no appreciable value in the prevention of dental caries or the irregularities of the teeth. As, however, vitamins probably stimulate the glands of oral hygiene, and as it is just possible that indirectly the absence of vitamins may occasionally predispose to disease resulting in hypoplasia of the teeth, I would like to suggest the way in which they possibly act. Let us first direct attention to vitamin A. This is supposed to be the vitamin which promotes growth. Its distribution in foods has recently been somewhat confused by the admission that another so-called vitamin, that is vitamin D, was not, as it were, properly separated off when the experiments for the elucidation of the distribution of vitamin A were made. Nevertheless, we may take it that it is to be found in animal fats and green vegetables. Particularly we may say that the belief in its presence in green vegetables is least likely to be erroneous. Plants as well as animals require protection from the action of bacteria, and it has long been well known that sunlight has bactericidal activities. It may be presumed that sunlight produces some change in the composition of certain kinds of organic matter, and that the resulting substance has a deadly effect on the bacteria. Let us assume that food is eaten containing organic matter which may have thus been transformed by the action of ultra-violet rays, then these lethal accompaniments of the food will not only tend to destroy bacteria, but will also stimulate the glands in the alimentary canal which are provided for the control and removal of bacteria and obnoxious substances. Suppose, on the other hand, foods have been eaten which have been completely purified from these antibacterial substances produced by the action of sunlight, then the bacteria would have a better opportunity of proliferating, and the glands for the preservation of alimentary hygiene would not have their normal stimulation. If, however, the bacteria in the intestine are not properly controlled, they will produce toxins of various kinds which interfere with normal metabolism and growth. Similarly with vitamin D. This may be produced by irradiation from cholesterol and some other organic substances. Taken by the mouth this "vitamin" would act much as does vitamin A. We know, however, that it is not always an accessory food factor. As previously indicated, we recognise it may be produced in the animal body by the action of sunlight, and passed into the alimentary canal with the bile. But the bile, as has long been known, has a controlling action on the bacteria and their products, and stimulates the alimentary canal to perform its normal functions in a proper way. Thus, then, vitamins A and D are protective, inasmuch as, directly or indirectly, they exert some antibacterial influence restraining the proliferation of the bacteria, and preventing them, as has been indicated, from entrance into the glands of Lieberkühn and the mucous glands in the cæcum. In addition to the action of sunlight, exercise stimulates the proper functioning of the liver, and altogether we may say that the liver is a most important organ from the point of view of alimentary hygiene. According to this theory it is not at all surprising to note that puppies could be reared without rickets when the puppies were given fresh air, exercise, and sunlight, even though they were deprived of animal fats containing vitamin A and D. That cod-liver oil has a curative effect on rickets has long been known, and it can hardly excite surprise that a very useful drug in the treatment of rickets should have been found in something extracted from the liver. It would simply

seem that the extract from the cod's liver supplied the intestine with the very substance which in a rickety child was absent from the biliary secretion as the result of improper feeding, lack of sunlight, exercise, and fresh air. It will thus be seen that it is really incorrect to speak about a "growth" vitamin, or an "antirachitic" vitamin, for growth is a primordial or inherent attribute of all living cells, at least until they become specialised in their functions, and it is not that the vitamin promotes growth, but rather that the absence of vitamins may allow toxic substances to retard or prevent it. Growth is almost completely controlled by hereditary causes and is affected in a remarkably small degree by dietetic vagaries, though partial starvation does affect it. Children follow their parents in size, not according to what they are given to eat but according to certain laws of heredity. If a deficient supply of vitamin A were to be regarded as the cause of the shocking prevalence of dental caries in England to-day, it would be difficult to explain why the stature of the English is greater now than it was a few hundred years ago. So, too, would it be difficult to explain why in New Zealand the children were specially well grown and heavy, while their teeth are considerably more ravaged with caries than are the teeth of English children in England. Similarly with the so-called antirachitic vitamin. The antitoxic or lethal substance, that is vitamin D, is not specifically antirachitic. The function of this substance is presumbly to control the bacteria and their products in the intestine, as these, if uncontrolled, may predispose to or give rise to rickets and other diseases.

An interesting corroboration of this view is to be found in certain dental considerations. Dr. H. Waller has brought forward conclusive evidence that oral sepsis produces such a change in mother's milk, that a child deriving its milk from its own mother fails to grow and put on weight so long as the oral sepsis continues. When, however, the oral sepsis is put right, generally simply by the extraction of all the teeth, and without change of diet, the child begins to thrive and put on weight. Thus it is evident that ill-health, loss of weight, and absence of growth in the infant resulted from toxins and not from lack of any vitamins in the mother's diet.

Now let me refer briefly to vitamin B. Beri-beri is the disease which is commonly said to result from the absence of this vitamin in the diet. It has been noted that in those countries where this disease is prevalent, the teeth are relatively excellent. This I had the opportunity of verifying to some extent during a voyage to the East last year. Now, if beri-beri results simply from a deficiency of vitamin B, as many vitamin enthusiasts might like us to believe, its epidemic nature would be difficult to explain. On the other hand, if we admit that Nature has made a wise provision in putting some substances of an anti-bacterial nature into the covering of the grain, we see how polished rice, having this protective coating removed, may allow the bacteria or virus which causes an epidemic of beri-beri to proliferate on the unprotected grain.[1] This would explain why beri-beri might break out in epidemic form in a district where the bacteria or virus causing the disease were present, whereas in countries in which white rice and other decorticated grains were almost exclusively eaten, the disease would not occur if the active cause were not present.

With regard to vitamin C I have no intention of saying anything against it, although as far as dental caries is concerned it may be of as little consequence as any other vitamin. This vitamin is known to be rather easily destroyed by cooking, and one of the principles of dietetics which I claimed to be of value many years ago was that the dietary should contain some uncooked food. If the assumption that vitamin C is necessary in the dietary be correct, then the desirability of uncooked fruit and vegetables will have all the better chance of coming into vogue. The limitation of the conception of accessory food factors to vitamins is, as already indicated, very regrettable, since the other accessory food factors are of much greater practical value, especially with regard to the prevention of the diseases of the teeth. Moreover, when the other accessory food factors which are destroyed by cookery and the ultra refinement of food are sufficiently retained in the diet, it may be seen that the accessory food factors known as vitamins are amply provided for.

Here, however, it should be said that cooking was probably primarily beneficial in that it destroyed or removed an excess of lethal substances or vitamins which were useful to the plants but injurious to the animals that tried to consume them. Of course, like many other good things, cookery and the refinement of food can be carried too far, and the presentation of food to children in a chemically pure form—e.g., sugar, and concoctions made with it, may, and does, give rise to disastrous results.

### DIETARY OF CHILDREN IN RELATION TO THE PREVENTION OF CARIES.

Let me now give you an illustration of the dietary for children advocated many years ago for the prevention of dental caries. It may be regarded as the prototype of numerous leaflets which have since been issued in England. It reads as follows:—

*Important Short Rules for the Prevention of Decay in Teeth and Associated Diseases.*

1. During the first two and a half years of life *all* starchy *or sugary food* (except milk) *should be given in a firm or fibrous form*, so as to stimulate mastication and insalivation, and thus promote the healthy growth of the jaws and the regular arrangement of the teeth. Bread, rusks, or any other farinaceous foods should never be added to or soaked in milk. Bread with crust (and butter), toasted bread (and butter), should form a considerable part of the solid part of the meals habitually given to children of this age. As the infant passes from the milk diet to the more solid diet the milk should be more and more diluted with water. During this period also the solid food should be eaten first and the milk and water taken after.

2. *After the age of two and a half years children should always have a considerable amount of the farinaceous food in a form which will stimulate a pleasurable amount of efficient mastication.* The albuminous part of their diet should also be presented in a form which will encourage mastication—e.g., boiled fish, meat, and later, bacon. Milk or milk substitutes should only be allowed in small amounts.

3. The meals should be *arranged* in such a way that if soft, starchy, or sugary food has been eaten, the mouth and teeth will be cleansed by food of a detergent nature taken immediately after. Thus, therefore, when sweets of any kind—e.g., milk puddings, jam rolls, cake, sweet biscuits, bread and marmalade, or jam are eaten, fresh fruit should be taken afterwards.

4. *Three meals daily are to be preferred to any greater number*, as the longer the interval the more hygienic is the state of the mouth and stomach and, therefore, the more perfectly adapted for the reception of a further meal. *Sweets, chocolate, or biscuit and milk should never be eaten between meals, or before going to bed.*

Then followed two lists of foods indicating those which were liable to induce dental caries and those which tended to prevent it.

*Not Cleansing and Liable to induce Dental Caries.*—Farinaceous and sugary foods in general, without fibrous element. Examples: Sweet biscuits and cake, bread and marmalade, bread and jam, new bread without crust, bread soaked in milk, milk puddings, porridge and milk, preserved fruit, chocolate and sweets of all kinds, honey. Liquids: Cocoa and chocolate.

*Cleansing and Preventive of Dental Caries.*—Fibrous foods generally. Examples: Fish, meat, bacon, poultry, uncooked vegetables, lettuce, cress, radish, celery. Cooked vegetables are, as a rule, cleansing, but in a less degree than uncooked vegetables. Stale bread with crust, toasted bread of all kinds, twice baked bread, pulled bread and cheese. Savouries. Fresh fruits, especially those requiring mastication—e.g., apples. Fatty foods—e.g., butter, margarine. Liquids: Tea, coffee, water; also soups and beef tea.[2]

[1] For a full explanation of this, or a similar theory, see Marine Hygiene and Sanitation, by Gilbert E. Brooke, Chief Health Officer, Straits Settlement Medical Department.

[2] Selected for use in the Clinic of the Preventive Dentistry and Oral Hygiene Department, Harvard Dental School.

It will be seen that these rules and the detergent types of food indicated provide amply for all the vitamins that are required. When writing these rules I had in mind the fact that the prevention of dental caries should not be considered an entity in itself, and consequently this dietary was intended to make provision for the prevention of tartar, pyorrhœa, the irregularities of the teeth, and indeed of all other diseases, so far as this was possible as a result of dietary reform. You will note that not only was the accessory food factor in the nature of the physical consistency of the food specially provided for, together with the stimulants required for the glands of oral hygiene, but also that the sequence of the articles of diet in the meal was so arranged that the mouth would be left in a hygienic state—i.e., the detergent foods come last. The non-recognition of these points is the chief error in most diets recommended for children, if indeed we overlook the harm that is often done by the unbridled recommendation of the articles of diet in the non-detergent list.

Suppose, however, that a dietary were suggested, as it frequently is, based on the presumed value of vitamins, all of which have no value in encouraging mastication, what use would it be from the point of view of the prevention of decay or the irregularities of the teeth? What value would it be from the point of view of a balanced diet? What value would it even be from the point of view of nutrition and energy? How far the attempt to construct a dietary on a vitaminic basis has been carried for the prevention of diseases which hardly ever exist in civilised countries, may be indicated by a recommendation recently given in the editorial columns of a medical paper. The subject under consideration was the prevention of dental caries, yet the author of the article maintained that bacon should be omitted from the dietary! There are few foods so excellently adapted for the stimulation of mastication and oral hygiene as bacon, and few are equal to it from the point of view of nourishment, energy, and heat production. Moreover, flavour or tastiness in food is not to be despised. Another recommendation showing the folly of basing a dietary for children on vitaminic considerations is to be seen in the advocacy of milk and cereal food. This amounts to little more than prolonging the age of pap feeding and the continuity of the shocking prevalence of the diseases of the teeth. The children in races like the Maori in New Zealand, the Eskimo in the Far North, and the Aboriginals in Australia are never given cow's milk, and cereals, if eaten at all, form but a negligible part of their dietary, yet their teeth are unexcelled by any other race in the world with regard to freedom from caries. It is thoroughly well recognised that where the land flows with milk and honey, there you have caries rampant in the classes which get these foods most, notwithstanding their vitamin content. Surely by this time dieticians might know that the hygiene of the mouth was not ministered to by milk, bread soaked in milk, milk puddings, and biscuits and milk. These and other like foods are examples of what should not be recommended by anyone having the slightest regard for the teeth or oral hygiene. It is lamentable to think that medical men are apparently still oblivious of the fact that a child of 2½ years is almost invariably blessed with a full set of most excellent and efficient teeth, and that the craze for vitamins makes them imagine that a milk diet mixed with other highly fermentable carbohydrates can be plastered about the crevices of the teeth without leading to the destruction of the natural denture. Even although the cereal were taken with the husk, say, in the form of brown bread, this as has been shown, ferments when masticated and mixed with saliva as rapidly as white bread, and the difference in its tendency to lodge about the teeth is not very notably less. If food values were to be adjusted according to the narrow theories of vitamin enthusiasts who base their beliefs on animal experiments, why should they not boldly advocate a diet of green grass and dandelions?—especially for nursing mothers.

Surely it should be recognised that different species of animals have different requirements with regard to food and feeding, apart from its vitamin content? Scraped carrots and mushy spinach may be all right for rats, in order to supply vitamins which have been carefully excluded from their diet. But such foods will not stimulate mastication in young children. In other ways, too, they may be quite unsatisfactory. Thus the amount of fat and protein and nutrition generally is disproportionately small compared with the innutritious cellulose, and the digestibility of the mixture leaves much to be desired. Perhaps one of the unexplored problems is the most desirable form of cellulose. There are reasons for thinking that the cellulose in coarse brown bread, for example, is not always the most suitable. Whether this is due to the kind of vitamin present, or some other cause, does not seem to have been investigated, and although in advocating dietary reform I have for more than a quarter of a century maintained that we should try to preserve the essential similarity of the environment and dietary to that which obtained during the evolution of the species, yet it must be remembered that cereal foods are somewhat artificial products of civilisation, even though the whole grain is incorporated in the completed article of diet. I am afraid, however, the question cannot be settled by experiments on rats, dogs, guinea-pigs, and other animals.

### AMOUNT OF VITAMINS REQUIRED.

Let us return again to a consideration of the amount which is required. We have noted that less than 4 per cent. of foods containing vitamins is all that is necessary to restore an animal to health even after previous depletion of vitamins in the food. Nevertheless, it seems to me that a considerable range is possible. However, when we recognise that vitamins are probably substances of a lethal nature, we must observe that there is a possibility of doing harm by advocating a dietary containing an excess of these substances. One might bring forward much evidence which would suggest that an excessive vitamin intake was frequently more harmful than beneficial. Thus many people are not able to eat much fruit or uncooked green vegetables without feeling harmful effects. Many, too, are liable to be upset by milk, cream, animal fats, and coarse brown bread, notwithstanding the general truth that these foods contain nourishment in a very good assimilable form, and no physician of experience would venture to treat a child suffering from rickets by at once administering large doses of cod-liver oil. It might be fair to say that the amount required is just enough to prevent the glands of oral and alimentary hygiene from becoming atrophied or otherwise hindered from performing their proper functions. Since vitamins are present in small amounts in many animal tissues, it is possible that they may be stored and presumably transferred to any tissue which might be liable to be invaded by bacteria. On the other hand, as they are found in the fæces it is presumable that when present in undue amounts they are kept out of the system. They are only partially absorbed and the bulk may thus be passed out together with the bacteria whose growth they may have restrained. Our attention is specially drawn to the fact that it is not desirable to have an excess of vitamin D, since where or when ultra-violet light is abundant the skin is permanently pigmented, and even where sunlight is not abundant, provision is made for controlling the amount of this vitamin by temporarily tanning the skin. Nor have we any real evidence that large amounts of vitamin A are of the slightest use in the prevention of caries. In relatively wealthy countries, especially among the well-to-do, the animal part of children's diet consists largely of milk, eggs, and butter, yet their teeth are a disgrace to civilisation.

If these views may be taken as an explanation more consistent with the facts than is generally given, we see that the word "vitamin" is even more objectionable than it has already been shown to be. Vitality is inherent in all living tissues, and vitamins

are not required to impart it. They only help to prevent bacteria and their toxins from interfering with vitality. Thus, instead of comparing vitamins to the electric spark in a motor engine, we should rather call them "mortamins," and to see in them the activities which might be attributed to Nature's anti-bacterial or, indirectly, germicidal drugs. Should this be the correct explanation and if research workers do not recognise it, they may heap up confusion even more than they have already done in their search for an explanation of the activities of vitamins.

It should always be observed that caries originates entirely from conditions external to the tooth. The microscopic structure below the surface of the enamel has nothing whatever to do with its cause, only the external form and relations of the tooth can affect this. And if any hope for further profitable research with regard to vitamins and dental caries is to be made, this must be recognised. There are three ways in which vitamins, or rather "mortamins," might help in the prevention of caries: (1) They might, and probably do, stimulate the proper functioning of the glands of oral hygiene. (2) They might inhibit the proliferation and activities of the acid-forming bacteria associated with the disease. (3) We know that nitrate of silver may stain and permeate the enamel, more especially where it is defective, and that this has an inhibitive effect on the progress of caries. It is just possible that "mortamins" might act in a similar way. We need not consider the hypothesis that vitamins, lymph, or antibodies coming via the pulp are the factors required to harden or to secure immunity of the enamel to caries, since teeth with extirpated pulp may and generally do show an equally "vital" or deadly resistance to the disease.

Let me now conclude by giving a more concrete illustration in practical dietetics of some of the foregoing observations. Let us analyse a simple meal, breakfast, for example. The most generally admitted dietetic principle is that man is a mixed feeder. He does not, neither does he care to, live by bread alone. But bread is a staple article of diet and almost invariably forms part of the breakfast meal. Now, in England, at least, there has been much controversy with regard to the relative value of white or of brown bread. Particularly in recent years it has been claimed that white bread was devitalised, devitaminised, and in various other ways rendered useless or harmful. It was condemned most frequently because it did not contain everything. But, as indicated, man is a mixed feeder and it would be most undesirable to be able to produce a bread or food and live entirely upon it. As bread is not a complete food, and let us hope it never will be, we have to consider not only what foods go best with it to make a complete meal, but also what kind of bread goes best with the other necessary accompaniments. Of course, we know that bread is deficient in fat, and for centuries at least the usual addition to the bread to compensate for this was butter. In addition to this, a light breakfast would include something in the nature of café au lait. Thus the 4 per cent. of vitaminic food would be well provided or. But in England this would be considered a rather poor breakfast. The most usual addition to the light breakfast referred to is an egg. The yolk contains a rich supply of vitamins. Still more then it is not necessary to have a bread containing much or even any vitamin. Two eggs are generally considered too eggy. May not this be due to excess of vitamin? A rasher of bacon in addition to the egg is most generally welcome. This does not increase the amount of vitamin. These additions give rather better balance to the meal, and provide a form of protein of higher biological value than the protein contained in the bread. When an egg-and-bacon breakfast is eaten, it is generally considered desirable to have the white bread toasted and the butter which would accompany the simple bread-and-butter breakfast is generally omitted. It is perhaps significant that man has chosen or prefers to eat toasted white bread with bacon and egg. Instinctively, he does not want to upset his liver with too much egg, nor to have a good meal spoiled with an excess of vitamins.

Of course, there are many other points to be considered. White bread appears to keep better than brown bread. It certainly toasts better, and with bacon it tastes better. While toasted bread stimulates mastication, this can hardly be said with regard to an egg. A rasher of bacon, however, together with the toast supplies most excellently all that is necessary from this point of view.

A good meal may easily be changed into a bad one, and this is often still done by finishing it off with bread and marmalade, jam, or honey. There is amply sufficient in the egg-and-bacon breakfast without this tooth-destroying addition, but if a special finish is required apart from taking the coffee last, the hygienic termination can easily be got from fresh, firm, fibrillar fruit full of fragrant flavour.

## PYREXIA INDUCED BY INTRAVENOUS PROTEIN THERAPY IN GENERAL PARALYSIS.

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FOR many years past non-specific protein therapy has had its place in the field of medicine. The mode of action of these foreign proteins still remains obscure, but one thing they have in common—namely, the capacity to produce pyrexia if given in appropriate dosage.

Of recent years the malarial treatment of general paralysis has been attracting attention, and results have been recorded which would seem to justify its use. As a result of the experience obtained by the study of a series of cases treated by malaria and reported jointly with Dr. H. E. Brown, of this service, in the Board of Control's annual report for 1925, it was decided to treat a further series by means of what one might term "artificial malaria," the pyrexia being induced by intravenous injections of T.A.B. vaccine.

The work is not yet completed, only two cases out of a total of 13 commenced having finished the course of treatment decided upon and described below, but the results obtained, as stated in a brief communication in the Board of Control's annual report for 1925, seem to warrant a further note.

Kunde, Hall, and Gerty [1] report a series of 12 cases treated by 13 injections on alternate days of mixed typhoid vaccine, giving an average temperature on the chart shown of 103·2° F. The dosage used increased gradually from 200 to 500 millions.

The material used has been the stock vaccine prepared by Burroughs and Wellcome, containing 1000 million *B. typhosus* and 750 million each *B. paratyphosus* A and *paratyphosus* B per c.cm.

The course decided upon here is as follows:—

1. A series of ten daily intravenous injections of T.A.B. vaccine increasing in dosage from 300 millions to 6000 millions.
2. A series of four intravenous injections at weekly intervals of 0·45 g. N.A.B.
3. A series of ten vaccine injections daily with a dosage increasing from 1500 millions to 25,000 millions.
4. An exactly similar series of N.A.B. injections to (2).
5 and 6. A repetition of (3) and (4).

The interval between each of the above series of injections averages four weeks, and complete serological examination of blood and cerebro-spinal fluid is carried out between the stages.

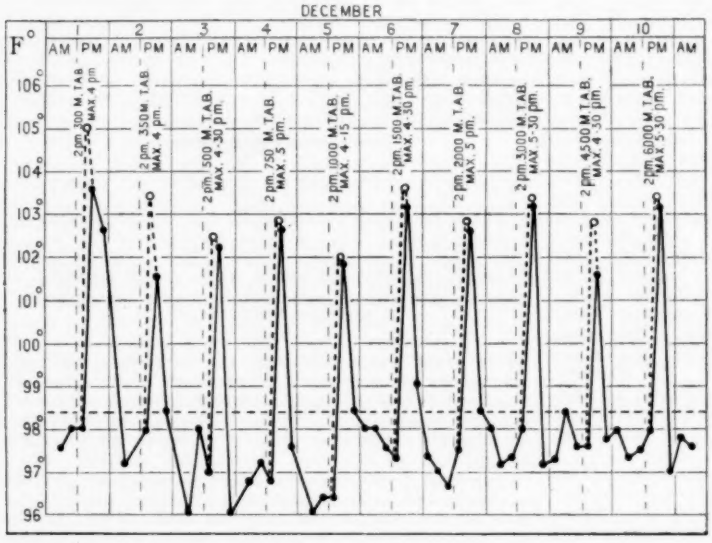
### *Results.*

Temperatures up to 106° F. have been registered (see chart), and the average is well up to the standard obtained in the pyrexia of malaria. The

[1] Jour. Amer. Med. Assoc., Oct. 23rd, 1926.

rigors are severe, vomiting and diarrhœa occur frequently, but no permanent ill-effect has been noted in spite of the massive doses used. The occurrence of protein cachexia mentioned by Petersen [2] has not been observed.

Perhaps the most striking immediate result of the vaccine injections is to be seen in cases of excited general paralysis. The extreme motor restlessness is quickly controlled, and so far seems not to return even when the patient is not under pyrogenic treatment. Apart from its obvious economic advantages, this feature makes it possible to obtain blood and cerebro-spinal fluid for examination with the minimum of difficulty whenever desired.


DECEMBER
F°
AM PM
2 pm. 300 M.TAB. MAX. 4 pm.
2 pm. 350 M.TAB. MAX. 4 pm.
2 pm. 500 M.TAB. MAX. 4-30 pm.
2 pm. 750 M.TAB. MAX. 5 pm.
2 pm. 1000 M.TAB. MAX. 4-15 pm.
2 pm. 1500 M.TAB. MAX. 4-30 pm.
2 pm. 2000 M.TAB. MAX. 5 pm.
2 pm. 3000 M.TAB. MAX. 5-30 pm.
2 pm. 4500 M.TAB. MAX. 4-30 pm.
2 pm. 6000 M.TAB. MAX. 5-30 pm.

Focal reactions have been noted in several cases, notably in one man who developed apical abscesses related to some dental stumps, and remained extremely restless and violent until these were extracted. This case serves to emphasise the importance of dealing with such obvious sources of irritation and toxin production before undertaking anything further.

One patient developed well-marked herpes in the region of distribution of the lacrymal branch of the ophthalmic division of the trigeminal nerve, which cleared up, leaving slight scarring behind. This raises the question of the possibility of a focal reaction in the Gasserian ganglion. Most of the cases developed at one time or another ordinary herpes febrilis in the circumoral region.

It is not yet time to give figures, as treatment of this series was commenced only in December, 1925, and is as yet by no means complete, but in general, certain beneficial results have been noted, as follows: Restless and excited paretics have become quiet and easily managed, and considerable physical and mental improvement has occurred in those cases which were not too far advanced in the disease at the commencement of treatment. The above series represent the ordinary general paralytic admitted to this mental hospital, not specially selected cases, and it is an unfortunate fact that one does not often see really early general paralysis in these institutions. As far as could be ascertained the average duration of the disease from the earliest symptoms before the commencement of treatment in the above series was about 15 months.

Several men, formerly slovenly in dress, careless in habits, and quarrelsome in nature are now clean, tidy, and helping in the routine ward work. Ten cases are at present in one small ward with, so far, complete immunity from the crop of minor accidents and quarrels that in the ordinary way one would expect to result from the misdirected activities of that number of general paralytics living together.

No constant change has taken place in the Wassermann reaction in either blood or cerebro-spinal fluid. Negative results have been returned on occasion, only to be succeeded by a positive finding later. The gold-sol test and the globulin and cell content also show no constant alteration. In connexion with these cases, Dr. H. A. Strecker of the research laboratory, has been conducting an investigation into the bromine ratio of blood serum and cerebro-spinal fluid, the result of which it is intended to communicate later.

### *Advantages and Disadvantages of the Treatment.*

The *advantages* of this form of fever production, as compared with that obtained by malaria, appear to be as follows:—

1. A regularly recurring high degree of fever can be produced by appropriate dosage, similar to that produced by malaria (vide chart).
2. A living organism is not introduced.
3. The material is standardised and easily obtained; it is possible to regulate the amount given accurately.
4. The disadvantages connected with the use of mosquitoes are obviated—namely, special transport facilities and storage apparatus—as well as anti-mosquito rooms and nets, thus enabling the treatment to be carried out even in summer.
5. There is no incubation period and there is no possibility of a failure to react as may occur with malaria in the winter. In all cases the rigor has commenced within half an hour to an hour of injection.
6. Immunity is incidentally conferred against the typhoid group of infections.
7. In the unlikely event of any untoward symptom arising the injections can be discontinued. Malarial pyrexia cannot be stopped by quinine with the same facility.

The *disadvantages* are:—

1. The possibility of inaccessible veins, or of thrombosis occurring in a vein as the result of frequent injections into, perhaps, the only vessel accessible. This has occurred only in one case.
2. The treatment occupies rather more time than the examining of blood films for malarial parasites at intervals.
3. In the higher dosages the material as purchased is expensive.

It can, however, be made at much less expense in a suitably equipped institution laboratory if massive doses are to be used.

[2] Protein Therapy and Non-specific Resistance, by William F. Petersen, M.D., p. 247.

## DIAGNOSIS OF CORONARY THROMBOSIS
### WITH REPORT OF A CASE.

BY LEONARD ABRAHAMSON, M.D. DUB., F.R.C.P IREL.,

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SUDDEN occlusion of the coronary arteries was regarded until recent years as synonymous with sudden death, and, with but few exceptions, as of post-mortem interest rather than as an ante-mortem clinical entity. A survey of English text-books is barren of any advance on the subject, and there is little to choose between the statement of Broadbent [1] in 1906 that "there are no characteristic physical signs or symptoms by which thrombosis of the coronary arteries can be diagnosed" and the statement of Price [2] in 1918 that "complete and abrupt closure of a coronary artery is usually fatal. If the vessel be small the patient may recover, but the

condition is one which is recognised with difficulty during life."

Clifford Allbutt,[3] it is true, discussed some few of the symptoms of coronary thrombosis, but only in passing, and made very little attempt to correlate ante-mortem symptoms with post-mortem findings. A clearer vision had been displayed in 1910 by Osler [4] in the Lumleian lectures. Thus, in speaking of the use of digitalis, he refers to one type of case in which marked cardiac weakness follows an acute single attack of angina pectoris in a comparatively healthy man, and states that post-mortem experience shows that the lesion in such a case is very likely to be blocking of one of the coronary vessels. Further, he realised the possibility that a man may get on very comfortably with only the main branch of one coronary. Recently, cases of coronary thrombosis have been recorded by Gibson,[5] Coombs and Hadfield,[6] Bulmer and Mason Lamb.[7]

In the German literature cases have been recorded in which a diagnosis was possible and the patient survived. These are referred to in Romberg's [8] text-book, but are regarded by the author as highly exceptional.

The main advance on the subject is to be found in a prolific American literature which has sprung up in recent years. The contrast between this gap in English literature and the multiplicity of references in American journals was stressed recently by McNee,[9] writing from the Johns Hopkins Hospital, Baltimore. Perhaps the most representative articles are those of Herrick [10 11] in 1912 and 1919 and that of Wearn [12] in 1923.

### *Clinical Features of the Condition.*

It is apparent from a study of the literature that even large branches of the coronaries may be occluded without an immediately fatal issue, and that the patient may survive the accident by hours or days, and in a few cases by months or years. In those who survive there is a characteristic clinical syndrome of which the features may be summarised as follows:

1. The patient is usually past middle life, and may or may not have experienced previous attacks of angina pectoris.
2. The onset is abrupt, usually with pain of extreme severity and persistence, unrelated, as a rule, to food or exertion, and recognised by the patient as unlike any pain previously experienced. The localisation varies and may be abdominal. The pain is not relieved by morphia.
3. Symptoms of shock, with anxiety, cold sweat, collapse, feeble pulse, and low blood pressure. The face is ashen and slightly but variably cyanosed.
4. Dyspnœa, sometimes sudden and urgent.
5. Nausea, vomiting, belching of gas.
6. Signs of heart failure with enlargement of the heart, œdema of the lungs, congestion of liver and kidneys.
7. Pericardial friction; inconstant, but of extreme diagnostic value.
8. Pyrexia and leucocytosis.
9. Variation in the electrocardiogram.

Of the articles dealing with the electrocardiograms in coronary thrombosis, the most instructive are those of Fred. M. Smith. Smith [13] reported in 1918 an investigation in which an electrocardiographic study was made on the dog following ligation of the coronary arteries. Confirmation was recorded in a further experimental study [14] in 1920. In 1923 he reported [15] his findings in man and discussed 11 cases, including one in which the descending branch of the left coronary artery was ligated in the repair of a stab-wound of the heart. The curves, particularly in those patients in whom tracings were taken early and at frequent intervals following the thrombosis, corresponded closely with those obtained in the dog. The most constant changes were negatively of the T-deflection and a decrease in the amplitude of the Q R S group. Similar changes have been reported by Herrick,[11] Pardee,[16] who regards as diagnostic an upward convexity of the S-T interval, Robinson and Hermann,[17] and Kahn.[18]

Whilst this work is suggestive, it is by no means conclusive, and further investigation is required before definite diagnostic significance can be attached to any type of electrocardiogram.

### *Case Report.*

J. P., a male, aged 46, was admitted to Mercer's Hospital on April 12th, 1926, under the care of Sir John Lumsden, at whose request I saw the case, and with whose kind permission I now publish it.

The patient stated that he had been suffering for 18 months with periodic attacks of precordial pain, which radiated down his left arm, leaving it numb. These attacks were related to food and to exertion. The relationship to food was so definite that he attributed his symptoms to stomach trouble. Between the attacks of pain, and still more during the attacks, there was complaint of breathlessness and of palpitation. Giddiness and faintness were noted during the bouts of pain. This pain had occurred more frequently during the week before admission and it was for it that he sought hospital treatment.

*Previous Illness.*—On inquiry as to venereal disease, he stated that 18 years previously he had undergone treatment—scant and haphazard—for recurrent rashes. He granted the possibility that these were of the nature of venereal infection.

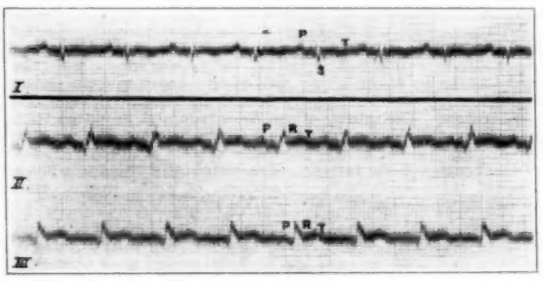
*Personal and Family History.*—He had been married nine years. In the first year of marriage his wife had an abortion. There were no living children. He stated that his grandfather, father, sister, and brother had all succumbed to heart disease.

*History after Admission.*—On arrival in hospital patient was fairly comfortable and remained so until 2 A.M., when he developed an agonising attack of pain, referred to the precordium and to the left arm. He stated that this attack was altogether more severe than and unlike any attack previously experienced. The pain lasted about 30 minutes and was accompanied by much anxiety. Seen by me on the following morning, he was ashen coloured, lips cyanosed, sweat on the forehead, with a general appearance of shock reminiscent of a case of gastric perforation. He was restless and anxious. The pulse was feeble, rate 124 per minute. The blood pressure was 110 mm. systolic. Breathing was laboured, respiration-rate 28 per minute. The temperature was subnormal. The apex beat was not palpable. Cardiac dullness extended about half an inch to the left of the nipple line. Heart sounds were almost inaudible and a faint systolic murmur was to be heard over the mitral area. The liver was enlarged and palpation over it revealed distinct tenderness. Numerous bubbling râles were heard over the bases of both lungs.

*Diagnosis.*—A diagnosis was made of coronary thrombosis, and the probability was suggested of antecedent syphilitic heart disease. The W.R. was carried out and was fully positive.

*Progress.*—Prostration was marked. Pallor persisted and delirium was noted, particularly towards night. The temperature rose on the day after admission to 99° F. and on the two following evenings registered 102° F. and 101·6° F. On April 16th it descended to 99° F. and after this

FIG. 1.




Electrocardiogram showing small amplitude of ventricular waves.

remained normal. The pulse-rate varied from 98 to 140 beats; respirations from 28 to 40 per minute. Albumin appeared in the urine. An electrocardiogram (Fig. 1) taken on April 20th, showed small amplitude of the ventricular complexes. In lead I. the S wave (no R wave is present) measures 4 mm., the T wave being represented by a barely visible depression. In leads II. and III. the R wave measures respectively 6 mm. and 5 mm., the T wave being again small but upright. Unfortunately, the condition of the patient permitted only one electrocardiographic examination.

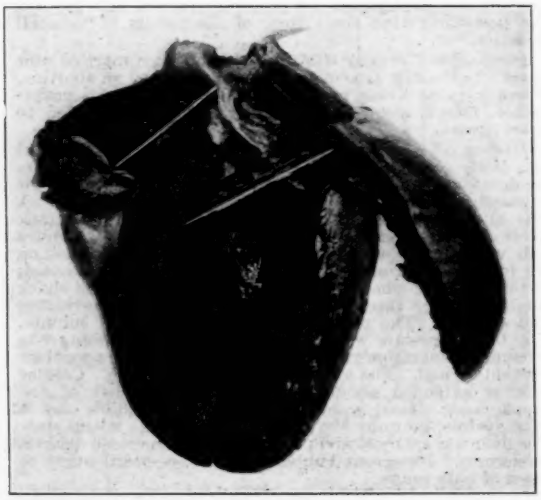
Improvement was noted on April 20th, 1926, and the blood pressure rose on this date to a systolic reading of 140 mm. This really was transient and yielded once more to prostra-

tion and delirium. On the 26th, 14 days after admission, the patient died.

*Post-mortem Examination.*—Only a partial post-mortem was permitted. The heart was removed by me and submitted to Dr. John Lait, to whom I am greatly indebted for the following report and the photograph (Fig. 2).

The heart is hypertrophied and when fixed weighed 22 oz. The coronary arteries are thickened and the descending branch of the left coronary is thrombosed. On cutting open the heart the pulmonary and tricuspid valves are normal. The aortic and mitral valves are thickened and show evidences of chronic endocarditis. The left ventricle shows extensive infarction of its anterior wall in the region of the apex. The infarcted area extends to within a quarter of an inch from the pericardial surface. The muscle wall is necrotic

FIG. 2.



Shows syphilitic aortitis and infarct in the left ventricle.

and hæmorrhagic, and a considerable portion of the cavity of the left ventricle is occupied by a large thrombus adherent to the infarcted area. A definite line of demarcation, somewhat pale in colour, is clearly made out between the infarct and the unaffected muscle wall. The aorta, in the region of the aortic valves, shows several raised yellowish pink patches. These have a scarred and furrowed appearance and involve the openings of the coronary arteries, but do not occlude them. The ascending aorta also shows some smaller patches of atheroma.

Microscopically, the infarcted area shows necrotic muscle-fibres with areas of hæmorrhage. The muscle-fibres are fragmented, somewhat hyaline in appearance, and the nuclei cease to stain. The rest of the heart muscle shows changes such as are usually found in chronic interstitial myocarditis. The muscle-fibres are atrophied in places with increase in the amount of fibrous tissue between the muscle-fibres. The lumen of the coronary vessels is much reduced by thickening of the intima. The patches in the aorta show internal thickening with collections of small round cells mainly around vessels.

The infarction in this case is due to thrombosis of the descending branch of the left coronary artery, and the appearances are strongly suggestive of syphilis. The scarred patches in the aorta in the region of the aortic valves are almost typical of the specific nature of the lesion. Frequent attempts to demonstrate the spirochæta by Levaditi's method proved unsuccessful.

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(*Continued at foot of next column.*)

# Clinical and Laboratory Notes.

## NOTE ON THE CAUSATION OF HEART SOUNDS.

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ABOUT six months ago a man of athletic build, who played regularly for a senior football team, presented himself for examination before being admitted to one of the local factories. On examination he was found to have a marked mitral systolic murmur without any other evidence of cardiac disturbance. He acknowledged no illness of a rheumatic nature, and stated that he felt quite fit. He was admitted to the factory on condition that he came up for re-examination in six months' time. When this period had elapsed no murmur was to be heard, but on being pressed he confessed that when previously examined he had not slept for a week, as he had been by night in charge of a mental case.

How can worry and want of sleep such as this man experienced give rise to a cardiac murmur? The answer depends entirely on what we consider to be the cause of the normal sound. If we do not know the cause of the normal heart sound how can we know the cause of the abnormal?

My explanation is as follows. In health there is about 8 c.cm. of fluid in the pericardial cavity. This fluid is under a negative pressure of about 6 c.cm. of water, and as a result of this negative pressure, to which I first drew attention [1] in 1916, there is a suction action which keeps the fluid at an equal thickness all over the heart's surface. The quality of the fluid, as well as its quantity, depends on the general metabolism of the body, and if this metabolism be disturbed by any factor, such as worry or want of sleep or both, the pericardial fluid suffers accordingly. As I have previously pointed out,[2] I consider that the heart sounds are produced by the movements of this pericardial fluid, and not by the contraction of the muscle of the heart. To produce a sound corresponding to the pitch of the normal heart sound at least 60 vibrations per second are required, whereas the heart contracts little more than 60 times per minute. If the valves cause a cardiac sound by their impact, how is it that when they are destroyed by disease and can cause no impact the sound is intensified considerably?

Fluid in a sac can be demonstrated to give rise to sounds exactly resembling those of the heart. To demonstrate these sounds all that is required is a small rubber balloon, half a teaspoonful of water, and a piece of string. Place the water in the balloon and tie the neck of the balloon as it lies quite flaccid. Place the chest piece of a stethoscope over one end of the balloon and at the same time gently press the other end with the forefinger; then the "heart sounds" will be heard.

If my contention is correct, considerable modification of present-day teaching seems to be needed.

[1] Dublin Journal of Medical Science, October, 1916.
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(*Continued from previous column.*)

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NOTES ON

## TREATMENT OF NURSING MOTHERS WITH ULTRA-VIOLET RAYS.

BY CATHERINE CHISHOLM, M.D. MANCH.,

AND

MARGARET MCKILLOP, M.B., CH.B. GLASG.

As sun treatment is apparently successful in improving general metabolism, an experiment was made at the Manchester Municipal Sun Clinic to see if ultra-violet radiation was of value in maintaining the milk supply of nursing mothers. The mothers were sent up from the infant welfare clinics because breast milk was failing, and occasionally because they were very debilitated, and it was therefore feared the milk supply would fail. The women were exposed three times a week at the distance of one yard from a Hanovia mercury-vapour lamp. They were given gradually lengthening periods, from two minutes to half an hour according to the reaction of the patient. Treatment was then continued at the latter rate, or reduced to once a week, according to the progress or needs of the patient. The patients were exposed down to the umbilicus and up to the thighs, half the time exposing the front, then turning.

It is difficult to treat nursing mothers at a clinic where regular attendance three times a week is expected. They have many other duties, and are liable to miss treatment because of their own ill-health or that of their families. These mothers often had to come considerable journeys for their treatment, and their tram fares were also an additional expense to poor people. The patients were of all grades of the working class, the majority, but not all, on the dole; some, however, were in fairly comfortable circumstances. They had to attend three times a week, and if they did not do so with fair regularity their treatment was discontinued. It was not considered, especially during the early period when the exposure is short, that a less attendance than three times a week would be of value. That so many persisted under these circumstances shows that they themselves felt they were deriving benefit from the treatment. Of the first 100 cases treated after June 1st, 1926, 47 ceased to attend within a month for one reason or another. As no benefit could be reasonably expected unless a regular course was taken, these cases are not further considered in this report.

In treating these women we looked for improvement in the general health. This alone, in so far as it made the woman more fit to undertake maternal and housewifery duties, would justify treatment. But we were hoping also for improvement in the breast supply, or its preservation for some time when it seemed to be failing. It was expected that its vitamin content would be enhanced by exposure of the mother to sunlight, so that not only would there be a greater, but a better, supply.

Of the cases who persisted in treatment, 53 in number, all experienced general benefit. In 11 cases, however, no benefit so far as breast milk was concerned was obvious, although in two cases the mothers said they felt better for a time. Of the 11 cases, one mother had breast abscesses and had to give up; another was absent for a time from ill-health, and therefore failure was not unexpected; one mother was off nursing her children with tonsillitis; three cases appeared to improve slightly for a time; one weaned her child owing to her private doctor's advice. Of the remaining 36 cases all were successful in improving or retaining milk-supply for prolonged periods. Short notes of a few cases are appended.

Baby, 9 weeks. Supply, which was failing, improved with second treatment.

Baby, 1 month. Baby supp. feeds of Glaxo. Mother never fed her babies more than three weeks before, and anxious to continue. In a month on breast only, and gaining well.

Baby, 10 weeks. Breast and Cow and Gate. Within fortnight milk better. Mother's health improved. Hb. index went up from 70 per cent. to 80 per cent. Breast milk increased. Baby's weight markedly improved, though C. and G. feeds were not increased.

Baby, 14 weeks. Started treatment 16/7/26—milk failing. 21/7/26 breast milk test feed ¾ oz. 27/8/26 breast milk 2 oz. No supplementary feeds given. Breast fed till 7 months.

Baby, 3½ months. Mother, 31—losing milk. In month baby entirely breast fed, and mother not taking so much in the way of extra feeds. Baby breast fed entirely to 9 months.

Baby, 2 months. Breast milk failing. Milk improved and baby partly breast fed till 7 months.

Baby, 3 months. Mother giving only one breast feed a day was persuaded though without faith in treatment to attend. In three weeks was giving only two bottles in 24 hours. Later report gives milk still increasing.

Baby, 1 month. Breast fed alternately with C. and G. A week later note says mother only gave three artificial feeds since treatment began. At 7 months the notes say breast milk beginning to fail, baby has *one* bottle a day. Improvement later shows baby now 8 months entirely breast fed.

Our acknowledgments are due to the medical officer of health for permission to publish these cases.

A CASE OF

## SUBACUTE YELLOW ATROPHY OF THE LIVER.

BY ANDREW BROWN, M.B., CH.B. GLASG.,

LATE MEDICAL OFFICER, COLONIAL MEDICAL SERVICE.

THE following was an interesting case.

A native male (Barotse) was admitted to the Livingstone Hospital, Northern Rhodesia, in December, 1925, suffering from general weakness, loss of appetite, and swelling of the abdomen. He stated that his illness began about three months before admission, and that his condition was rapidly becoming worse. He had always been employed as a cattleman, and could give no clue as to the cause.

Examination revealed great enlargement of the liver, emaciation, and slight yellowness of the conjunctivæ. There was only a small amount of free fluid in the abdomen, and the urine was apparently normal. The lower margin of the liver was palpable about 3 inches below the costal margin. The palpable area of the liver was covered with numerous large nodules, firm in consistence, and only slightly tender on pressure, varying in size from 1 to 3 inches in diameter. A needle was inserted into several of the larger masses, but no fluid was obtained. A small quantity of fluid was withdrawn from the abdominal cavity, and it possessed the characteristics of ordinary ascitic fluid; tyrosin was not present in this fluid. The liver gradually became more enlarged, the quantity of free fluid greatly increased, necessitating frequent aspiration, and emaciation became extreme. The patient died from exhaustion on Feb. 6th, 1926, about eight weeks after admission.

*Post-mortem examination* showed very great enlargement of the liver (weight 14¼ lb.). The kidneys were slightly enlarged, pale, and capsule slightly adherent. The other organs were apparently normal. The outer surface of the liver was coarsely mottled—dark, irregular areas alternating with lighter yellowish patches—and firm in consistency. Other portions of the liver were softer, and on section exhibited soft, somewhat circular patches, filled with yellowish semi-solid tissue. Sections prepared from specimens gave markedly different appearances representing different stages in one pathological process. In some areas the liver cells were swollen and granular, the nuclei staining faintly, and the cell margins appearing indefinite. Many of the cells contained pigment. In other places all traces of cell-structure were absent, only a granular debris remaining. In more advanced stages all traces of the liver tissue had disappeared, the lobules being represented by the fine connective tissue framework. In some parts connective tissue proliferation and round-cell infiltration was marked, and there was also some proliferation of bile-ducts.

These findings would indicate a subacute yellow atrophy of the liver.

# BRITISH MEDICAL ASSOCIATION.

## ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 193.*)

### MONDAY AND TUESDAY, JULY 18TH AND 19TH.

### REPRESENTATIVE MEETING.

*The Duties of Medical Officers of Public Schools.*

THE report of the proceedings in committee, dealing with the Council's recommendations on school medical officers, was received and approved. Therein the duties and remuneration of whole-time and part-time medical officers of public schools were defined and it was established that they should be appointed by, be directly responsible to, and have direct access to the governing body, also that satisfactory arrangements should be made in school curricula for health instruction and that the medical officer should be consulted in framing the syllabus.

*Antenatal Work and the General Practitioner.*

Dr. RENTON then brought forward his postponed amendment to refer the whole subject of the Midwives Act, 1918, back to the Council for reconsideration in the interests of all concerned with antenatal work. He said that the five parties concerned were the unborn child, the expectant mother, the general practitioner, the public, and the midwife. Former speakers had stated that if only the general practitioner would make himself efficient in this work he had the solution in his own hands. The experience of practitioners was that they had made themselves efficient only to be passed over. Midwives were being trained, by a three-days' course, to undertake the whole of the antenatal work. The county medical officer of the speaker's district was not unsympathetic but said that he could do nothing with the Midwives Act as it stood.—Dr. H. M. RAVEN seconded the motion and Sir EWAN MACLEAN cordially supported it, saying that it was a matter of common agreement that antenatal work was the principal avenue to the reduction of puerperal morbidity and mortality in this country. The people who ought to have this matter in hand were unquestionably the general practitioners, notwithstanding any further development of antenatal clinics or the education of midwives. They were not only willing but anxious to take part in this life-saving work. Their alleged shortcomings had unfortunately been one of the propagandist features of those seeking to establish clinics. This was a profound mistake, and any scheme which left them out of account was sure to fail.—Dr. D. ROXBURGH supported the motion from the point of view of the efficiency of the practitioner.—Dr. BONE said that the practical problem was how to get the general practitioner to do the antenatal work, and accepted the motion.

*Application of the Scale of Public Health Salaries to Scottish Appointments.*

The Chairman of Council reported that the Council had that day passed the following resolution:

1. That the scale of minimum commencing salaries for whole-time public health appointments amended in the manner suggested by the Scottish Committee—namely: (*a*) that the commencing salary for resident medical officers be £250 to £400, plus emoluments; (*b*) that the commencing salary of medical officers employed in departments be on a graded scale, the average salary over ten years being not less than £600, the minimum commencing salary to be not less than £500; (*c*) that the scale of commencing salaries for chief medical officers of health be as follows:—

| | | | |
|---|---|---|---|
| Population not exceeding | 50,000 | = | £800 to £900 |
| ,, ,, ,, | 100,000 | = | £900 to £1100 |
| ,, ,, ,, | 250,000 | = | £1100 to £1400 |
| ,, exceeding | 250,000 | = | £1400 to £1600 |

(*d*) that a minimum commencing salary of not less than £700 may be recognised in county areas with a population not exceeding 25,000, where coördination with an adjoining area is not feasible,

be accepted for application to Scottish public health appointments as a working arrangement for one year only as from June 16th, 1927; and

2. That in the meantime the Council authorise the Conference of Representatives of British Medical Association and Society of Medical Officers of Health to consider the modification of the scale, for application to public health appointments in England, Scotland, and Wales on the following lines: That there be added to the scale a note to the effect that as an alternative to the existing provisions of the scale relative to the salary of "medical officers employed in departments" there would be accepted for such officers an initial salary of £500 a year if the appointment is made on a definite scale under which, subject to satisfactory service, the officer appointed would receive annual increments of not less than £25 (or biennial increments of not less than £50) rising to not less than £750 a year.

Resolved that the action of the Council be approved.

*Puerperal Pyrexia Regulations.*

A motion by St. Pancras—

(1) That the minimum fee payable to a recognised obstetric specialist for each consultation under the Puerperal Pyrexia Scheme be £3 3*s*. (excluding operative treatment), with reasonable additions for mileage to be mutually arranged with the local authorities; (2) that the Representative Body is of opinion that the local authority should be empowered by the Ministry of Health to pay a reasonable fee to the general practitioner who meets in consultation an expert called in under the Puerperal Pyrexia Regulations; and (3) that it be an instruction to the Council to take all possible steps to secure that these resolutions be made effective,

was thrown out after some attempts to amend it had been discussed. It was opposed by Drs. MASTERMAN, BONE, and HAWTHORNE, and was variously described as "grotesque" and "the most unreasonable motion ever put forward."—Dr. D. ROXBURGH and Dr. I. W. JOHNSON supported it.

Bath put forward a motion to ensure that all kinds of specialists should be included in the panel of consultants under these regulations. Several speakers, including Dr. R. BOYD (Manchester) and Dr. W. F. DEARDEN (Manchester), were anxious that the general practitioner should be eligible for these panels, as he was the man with most experience of the condition. After some verbal emendation in this sense the Bath motion was agreed to as follows:

That it is desirable, owing to the fact that puerperal pyrexia may be due to causes other than obstetric, that any panel of consultants which may be instituted under the Regulations should include competent physicians, surgeons, and pathologists, in addition to consulting obstetricians; further, that some standard of competence should be adopted, such as membership of the staff of a local general or obstetric hospital, or the possession of special qualifications or experience by private practitioners.

*Remuneration of Assistants.*

In 1925 the Representative Body drew up a tentative scale of remuneration for assistants in general practice, but decided to take no active steps to enforce it at present. A motion from the South-Eastern Counties of Scotland desired to modify this scale, while another from St. Pancras desired to enforce it by the refusal of advertisements which did not conform. Dr. J. S. MUIR, speaking for the first motion, urged the difficult conditions of rural practice and the fact that an assistantship was so much part of the training of a young doctor that the suggested salary of £240 per annum with board and lodging was unnecessarily high. It would make it impossible for many busy men to employ an assistant at all.—Dr. COX spoke of the office difficulties aroused by this scale, as plenty of advertisements, both from employer and employee, were received offering and asking less than the scale. He hoped that the Representative Body would stabilise the position.—Dr. BONE pointed out that the B.M.A. was often twitted with setting up scales for whole-time officers and none for its own assistants. A tentative policy had been achieved, but this was not the moment to make it rigid. The first motion was rejected and the second withdrawn.

*Reports to Coroners.*

Dr. J. G. MACQUEEN (Hyde) and Dr. R. B. SMITH (Ashton-under-Lyne) proposed and carried a motion—

That there should be a fee where a report has been requested by a coroner from a practitioner who has not

performed a post-mortem examination and who is not called to give evidence.

Dr. Macqueen pointed out that in his district it was constantly happening that a report was demanded under these circumstances.—Dr. BONE replied that this had always been the policy of the Association but had been pressed in vain during the recent negotiations. He did not think another opportunity would arise for 50 years. The only remedy was to refuse to give such a report.

*Nursing Home Bill.*

Sir RICHARD LUCE reminded the meeting that the declared policy of the Association had been that nursing homes belonging to doctors should not be inspected or registered. The Select Committee, however, had not thought that it would be feasible for doctors to be thus exempted. The Council had come to the same conclusion and was not taking any steps to get special exemption in the Bill at present before Parliament. This Bill provided that the inspecting authority should be the county or borough council, but an attempt was being made to impose this duty on anybody that had control over maternity welfare, which would put it in the power of very much smaller authorities. The Select Committee agreed that it was essential for the inspecting officer to have the status of M.O.H. of a county or borough.

*Overseas Branches.*

Sir JENNER VERRALL, Chairman of the Overseas Committee, proposed and carried without discussion the report on this subject.

*General Medical Council.*

Dr. MORSE brought forward a motion from Bournemouth—

That the question of the need for revision of the existing representation, power, and procedure of the General Medical Council in order that they may comply more precisely with the changed conditions of medical practice, be remitted to the Council for consideration and report.

Dr. BONE offered to accept this motion on behalf of the Council, but the meeting decided to pass to the next business.

*Encroachment Upon Private Practice.*

Much feeling was aroused by Brighton's motion:

That the Representative Body, viewing with considerable concern the insidious inroads continually being made on private medical practice under the auspices of the State, voluntary bodies, and others, and being of opinion that this is not only detrimental to the interests of the individual members of the medical profession, but ultimately to all classes in the community, instructs the Council to watch all such developments and actively to interest itself in safeguarding private practice amongst all groups in the medical profession and to develop through the branches and divisions closer coöperation with the local medical profession for that purpose.

Dr. E. R. FOTHERGILL enumerated a long list of examples of directions in which the work of the general practitioner was being filched away, and said that the practice of 100 years ago would very soon cease to exist. If a medical man had no practice for five years he became rusty; in ten years he was a danger. Before long all general practitioners would be in this position. The General Medical Council and the State seemed to be at cross purposes; the former trained students to do all kinds of medical work, the latter wanted a team of whole-time officers to work under the medical officer of health. This silent, ceaseless, but plausible encroachment on the private practitioner had to be stopped. The private practitioner must be retained; he had an ideal in his life and a trust in his hands as much as the clergyman or any other profession and it was as well to announce that. Were medical men going to have a chance to fulfil that ideal in the future or were they going to be dragooned, regularised, and controlled until they had no freedom of action or freedom of practice?

Mr. E. B. TURNER supported the motion from his many years of experience both of practice and of the work of sundry bodies concerned in public health activities. To say that the general practitioner could not do the work as well as the whole-time man was sheer utter nonsense. If he chose to take it up he could do it as well and better than most of the young practitioners who were appointed. Administratively, no doubt, the whole-time practitioner was "tamer" and easier to work. Contract work was not the ideal; the ideal was the work done between the medical practitioner and his patient, but the younger generation of doctors were being educated to expect a good deal of contract work. The medical profession, concluded Mr. Turner, was skidding on a very slippery slope at the bottom of which there was nothing but a cemetery in which would be buried all that made the profession worth while. The only thing that could arise from that cemetery was the spectre of a whole-time State Medical Service, which would take all the humanity out of the profession and leave instead an icicle wrapped up in red tape called an inspector.

Dr. H. WOODROFFE supported the motion, instancing midwifery work, to which many general practitioners looked for the jam on their bread and butter; this was being filched steadily away.

Dr. C. E. DOUGLAS (Fife) strongly deprecated the suggestion that "the best doctor was he who could send you to the appropriate specialist." If that was right the practitioner, instead of being the skilled and trusted adviser of his patient, would become nothing more or less than a medical shopwalker directing customers to the appropriate department.

Tunbridge Wells brought forward a similar motion, which was finally amended to read—

That the Representative Body views with anxiety the increasing tendency to transfer the treatment of many diseases and conditions to whole-time medical officers as being detrimental to the public health, and refers to the Council the consideration of the general adoption of the following principles: (1) The function of the health authority should be confined as much as possible to the prevention of disease. (2) The work of the whole-time officer should be confined to administration, inspection, institutional, or consultative work. (3) Health visitors and nurses should be definitely responsible to a local practitioner for patients dealt with by them, including expectant mothers.

Dr. E. A. STARLING, proposing the motion, said that it was not an attack on public health medical services; the practice of medicine was one and existed for the public good. But some of the inroads made under the ægis of whole-time medical officers were not for the public good.

Dr. E. WARD, speaking as one who had been in general practice for 10 years and a whole-time officer for 14, referred to the difficulty of getting the general practitioner to take up and keep up these part-time posts. He was sure that the difficulties could be adjusted and that it was a matter for goodwill and getting together. Joint conferences might very well take up the problem of how the private practitioner could more and more be taken into the public health service.

Dr. D. ROXBURGH, Dr. M. RAVEN, and Dr. J. A. MACDONALD also supported the motion, and both the Brighton and the Tunbridge Wells motions were carried.

*Married Medical Women.*

Dr. S. FARMER proposed on behalf of Bishop Auckland—

That the Representative Body seriously deprecates the recent action of the Durham County Council in dismissing one of its women medical officers from its staff on the ground of her recent marriage, and is of opinion that if marriage is to be a cause for dismissal this should be stated at the time of appointment.

Whereupon an amendment proposed by Dr. CHRISTINE MURRELL (Kensington) was seconded by Dr. E. K. LE FLEMING (Southampton), to delete the words after "marriage" and insert instead the words, "and reaffirms the Association's policy of equality of status and salary for medical men and women." Dr. Murrell said that the last clause might be taken to face both ways, and if it were admitted that a woman might be dismissed on grounds of marriage public health authorities would not be slow to take

the hint. It was not a question of whether women should continue to work after marriage but whether they should be debarred from it, whether they were to be legislated for or allowed to come to their own decision. The question of individual liberty was involved. Dr. Le Fleming reminded the meeting that the Association had always held the policy of equality and that the capacity for doing his or her job should be the only critical factor. The amendment was carried. Whereupon Mr. BISHOP HARMAN, saying that this was sitting in judgment on a body in a matter of which the meeting had no personal cognisance, proposed and carried an amendment to phrase the motion as follows:

That the Representative Body reaffirms the Association's policy of equality of status and salary for medical men and women.

In reply to a question as to what this had to do with the original motion, the CHAIRMAN said that the first four words were unaltered. Dr. MURRELL appealed to the sense of fairness of the meeting and challenged them not to be afraid of saying what they really meant. She was successful in carrying as a substantive motion (seconded by Dr. P. MACDONALD, of York)—

That the Representative Body seriously deprecates the action of any local authority in dismissing one of its women medical officers on the ground of marriage and reaffirms the policy of the Association of equality of status and salary for medical men and women.

*Lunacy Law and Administration.*

Dr. LANGDON-DOWN, Chairman of the Lunacy Law and Mental Disorder Committee, presented a special memorandum on this subject prepared for the Representative Body. It dealt with two separate but interdependent subjects, he said, viz., the protection recommended for medical practitioners signing certificates and the facilities recommended for treating patients. In both these respects the Committee felt that the Royal Commission's report was unsatisfactory. Fortunately, there was very general agreement as to the requirements. At the present time the atmosphere was very favourable to increased protection for the doctor and greater freedom of procedure in treatment. The speaker referred to the recent pronouncement of Mr. Justice McCardie, and added that difference arose, however, when it came to the best methods of securing the objects in view. While it was desired to remove the intervention of the judicial authority, safeguards must be preserved through inspection, registration, and control from the Board of Control. One of the most important results of the Royal Commission was that the Board, after considerable attack, had emerged with greater prestige than ever before. The proposed loosening of the shackles was in the interest of both patient and doctor. All the proposals which tended to accentuate judicial interference seemed to be in a retrograde direction. The profession must always stand for intimate relationship between doctor and patient. He grouped the possible courses of action into four: 1. The demand for the concession of witness-status for the certifying practitioner. This was passed at the Representative Body in 1924. 2. Strengthening the Lunacy Act to the end of warding off civil actions. The Royal Commission had proposed that the onus of proof should rest on the plaintiff and that action should not lie unless the plaintiff could satisfy a judge in chambers that there was prima facie ground for his case. The Committee wished to add to this recommendation the proposal that the judge in chambers should be assisted by a competent medical assessor. The Committee also supported the recommendation of the Commission that, where the justice was called on to sign a certificate, he should cease to be perfunctory and be compelled to take measures to satisfy himself that the practitioner had exercised reasonable care. 3. The establishment of a body of certifying Government official doctors. 4. That the profession should shelter behind public officers so that the duty of care should not lie upon it. The only justification for the idea of witness-status was that in a sense it could be held that the judicial authority was holding a court, but such a conception was not in the interests of the patient and was contrary to the profession's general ideas of progress in the treatment of mental disorder. Complete immunity for the doctor meant that he was not open to attack even if he had not shown reasonable care. Under the common law of England all experts had to give reasonable care. The claim had been urged before the Royal Commission by the B.M.A. representatives, but the Commission had decided to advise protection of the doctor by the second method. As an amendment had been put into the agenda of the Representative Meeting reiterating the demand for witness status, Dr. Langdon-Down emphasised the unreasonableness of going to Parliament, against the recommendations of the Commission, to ask for relief from the duty of reasonable care. (The amendment was withdrawn subsequently.) He pointed out that the witness status would not hold under the Urgency Order where the justice was not called upon, or under the few days' Provisional Order. There must be some protection to cover all the host of actions which doctors had to meet in which the witness status would not save them even though the justice was called in. The second method would cover everything done under the Act and would go as far as was possible without repudiating the duty of care. The third method would mean that a doctor had always to go to a relieving officer or public official before he could deal with these patients, which would be quite impossible in private practice. Another amendment had suggested using a threat of non-coöperation to enforce the profession's views. Dr. Langdon-Down thought it would be a mistake to enforce any particular solution, particularly at a moment when the public was so favourable to the profession, as it might produce a situation very different from that desired. (This amendment was also withdrawn.) He thought doctors would get the necessary protection if the recommendations of the report were put into effect. He wished the memorandum referred to Council, as it dealt with many very delicate legal matters.

Dr. J. NEAL, who had withdrawn the two amendments from Hendon mentioned above, supported Dr. C. O. HAWTHORNE in his amendment, which read:

That the Representatives thank the Lunacy Law and Mental Disorder Committee for the memorandum on the report of the Royal Commission on Lunacy Law and Mental Disorder, refer it to the Council, and request the Council to reappoint the Committee with instructions to take whatever steps are possible to secure what the report of the Royal Commission declares to be "fair," namely, that the medical profession should not be asked "to perform their essential part under the menace of litigation which, even if unsuccessful, may spell financial or professional ruin."

Dr. Hawthorne protested against the suggestion that there was any desire in the profession to escape responsibility for professional action duly taken. The Commission had failed to find a single case of wrongful certification. He objected to giving approval to a printed document in general, as such things were liable to come home to roost in particular.

Dr. Neal said that greater protection was essential, but not absolute immunity. Deliberate negligence should not be protected, but no action should be possible without reasonable cause. Shifting the onus of proof to the plaintiff was excellent as far as it went and would very considerably modify the position. Medical assessors might prove very valuable, but it was an experiment the worth of which only time could prove. There still remained, however, a very grave danger—viz., that a doctor might be proceeded against under the law of libel, not under the Lunacy Act at all. The certificate was medical evidence, which, if given in a court, would be protected. He urged that certifying practitioners should not be subjected to a living nightmare as they were at present.

Dr. W. GRIFFITH (Marylebone) said that his division had heard the views of its experts and unanimously demanded complete protection. The menace had not been removed.

Dr. BONE urged the Representative Body to take this opportunity of saying definitely what it wanted. Every doctor wanted protection, and the judges and everybody else were in agreement. The whole question was how to obtain it, and that was the question the meeting ought to answer. To send the memorandum back was to burke an obvious duty. The case for witness-status had been put as well as possible and fully discussed, and the Commission had reported that on grounds of public policy it was not feasible. The interests of the profession were subsidiary to the general interest. Under these circumstances the Representative Body must decide whether to withdraw from its original position or whether to put its back to the wall and demand witness-status or nothing. The Committee did not think that shifting the onus of proof was enough, but the choice of the medical assessor might prove a difficult one, as it seemed that money would buy any opinion from some medical experts. How was it possible for an honest medical opinion to be given 10 or 12 years after the event? One method of attacking the problem might lie in preventing the profession from giving such evidence. He asked the meeting to turn down Dr. Hawthorne's amendment and put up something definite for discussion.

Dr. H. G. HAYNES (mid-Essex) emphasised the fact that the Royal Commission had dismissed the question of witness-status and that before the next Representative Meeting new legislation might be put into force. The protection of the practitioner was not the only thing in the report.

Dr. H. C. BRISTOWE (Bristol) recalled that at the time when the Act was being discussed the profession had regarded the protection it afforded as very nearly complete; experience had proved that it was not. He thought that witness-status should be demanded, even if it could not be obtained.

Dr. E. R. FOTHERGILL said that his experience was that when a judge had the opportunity of using a technical assessor he did not take it. He thought the suggestion, that the magistrate should certify that the practitioner had exercised reasonable care, was a most dangerous one. The first thing to urge was that the patient needed treatment. It would be most disastrous to bring the judicial authority into any medical question. It had never been decided to whom the doctor was responsible, whether to the patient or to someone who asked him to examine that patient. If it was to the patient, then the certificate should be handed to him; if to the friends, then the doctor was open to a libel action. This question ought to be plainly discussed.

Dr. A. NOBBS (Wandsworth) asked for an account of what occurred between the B.M.A. representatives and the Royal Commission. The weak spot in the law was that the magistrate, who knew nothing of psychiatry, was required to protect himself, the patient, and the general practitioner.

Dr. D. ROXBURGH said that this was a battle royal between doctors and lawyers, and doctors should fight for complete immunity from all civil actions.

Dr. F. RADCLIFFE supported Dr. Hawthorne's amendment. He pointed out that if a doctor examined a recluse patient under the order of a magistrate he was open to an action for assault and had no redress. This case was not mentioned in the memorandum. Nor was the single-care case. The law demanded that the certificate should be signed by the usual medical attendant, but then debarred him from treating the patient any longer. Often the very reason why this type of case was certified under single care was that he might be kept at home under the continued care of his own doctor.

Dr. LANGDON-DOWN undertook to convey to the Committee the opinions expressed. The Committee, equally composed of general practitioners and others, had discussed Dr. Hawthorne's views fully, but had not been able to accept them. In speaking of the menace of litigation, Dr. Hawthorne had taken a paragraph from the report of the Royal Commission without its context. Dr. Langdon-Down accepted the amendment, as he himself desired that the memorandum should go to the Council for reconsideration and improvement, on the understanding that the last clause was not to tie their hands. The amendment was carried.

Dr. F. TEMPLE GREY (Marylebone) said that Dr. Hawthorne's amendment was not sufficiently precise. The doctors would do their case more harm than good by refusing to sign certificates and would be lacking in their duty if they tried to avoid this responsibility. The immunity Dr. Hawthorne had asked for was not imaginary but existed in Scotland and had existed in England. He moved:

That it be referred to Council to consider the desirability of urging upon the legislature that the judicial authority under the Lunacy Act of 1890 must assume full responsibility for the commitment of a person alleged to be of unsound mind, and that such judicial authority be either a county court judge or a magistrate with special qualifications, such as a medical barrister.

The people of these islands would only agree to detention under due process of law. It was only as the funds of medical defence unions became large that the magistrate ceased to admit this responsibility. It was important to press, not for what was vaguely called "witness status," but for the acceptance of responsibility by the magistrate, as in Scotland.

This was seconded by Dr. W. GRIFFITH (Marylebone), and Dr. L. D. PARSONS observed that this was the law in Ceylon. The motion was passed.

Dr. D. ROXBURGH then proposed:

That the Representative Body directs the Council to appoint a Committee for the further consideration of the report of the Royal Commission on Lunacy; and further directs the Council to secure on the Committee an adequate number of general practitioners on whom the responsibility of signing certificates under the Lunacy Acts mainly falls.

Dr. LANGDON-DOWN accepted this and it was carried.

*Parliamentary Elections.*

The Chairman of the Parliamentary Elections Committee (Dr. E. K. LE FLEMING) said that the most important place of all to make known professional views was the House of Commons. The Ministry of Health was not the House of Commons. Very few Members of that House even knew or understood what the B.M.A. was and stood for, and many had the most extraordinary views of its constitution. If a medical man became a Member of Parliament he generally developed rapidly into a politician and ceased to represent the views of the profession at large. In Sir Richard Luce the profession had a very valuable exception to this rule. This Committee of the B.M.A. had been allowed to languish. The Council had seriously considered winding it up, but at a recent meeting the trustees of the National Insurance Defence Trust had placed a sum of £1000 at the disposal of the B.M.A. Committee for the support of approved medical candidates for Parliament. The Council therefore recommended:

That the Council be authorised to accept the offer of the trustees of the National Insurance Defence Trust, and to adjust the composition and procedure of the Parliamentary Elections Committee accordingly.

That the Representative Body express the opinion that in view of the offer of the trustees of the National Insurance Defence Trust members be urged to contribute to the Medical Representation in Parliament Fund so that the volume of individual contributions to that fund shall reach a total at least equal to the promised contribution of the trustees of the National Insurance Defence Trust.

Dr. JOHNSON SMYTH supported these recommendations.—Dr. E. K. LE FLEMING then pointed out that the Association had no politics but it was extremely difficult to get party backing for medical candidates. This difficulty was less in university seats, where party feeling ran less high. He therefore proposed:

That the Parliamentary Elections Committee be instructed to pay special attention to the possibility of securing the election to Parliament of medical candidates for University seats.

These motions were all carried and the report approved.

*Public Health Propaganda.*

Dr. LEWIS LLOYD, Chairman of the Public Health Committee, proposed and carried:

(i) That medical practitioners should not give health lectures under the ægis of local authorities gratuitously; and (ii) that although the lecturer must in every case necessarily be approved by the local authority there is no reason why any particular class of practitioner should be excluded from delivering such lectures.

He also stated that the scheme of coöperation between the B.M.A. and the Society of Medical Officers of Health, agreed to in 1923, was under consideration. It had been decided that the offices of the Association and Society should keep each other advised in all matters relating to prospective public health appointments, and that the Society should make it clear to all its members that any action taken locally must be by and through the British Medical Association Division. In 1926 the Council had been instructed to consider how local branches of the Association could contribute to public health education. As a result of consideration of Sir G. Newman's memorandum on this subject, and of consultation with the Society of Medical Officers of Health, it had been agreed to suggest to the divisions that they approach their local authorities with a scheme for health propaganda work. This scheme, he said, would include lectures and cinema demonstrations on the obvious subjects of general medical interest, elucidation of local problems, visits to dairy farms, hospitals, holiday camps, and health exhibitions, and distribution of propaganda. The Society of Medical Officers of Health had proposed, he said, that its scheme for propaganda and that of the Association might be complementary if the divisions of the Association would interest themselves in the following proposal: The setting up by the Society of a committee to advise local authorities in reference to the education of the public and to promote health education work, the committee to consist of 12 members representative of the obvious State and municipal bodies concerned, and to invite medical officers of health to secure subvention from their councils. The Society proposed, if adequate financial support were forthcoming, to appoint for trial a half-time assistant secretary for propaganda purposes.

Dr. LEWIS LLOYD moved that the report and proposal should be approved.

When the report had been approved, Southport proposed:

That the Council be asked to arrange with the Society of Medical Officers of Health that, in areas where cases of small-pox are known to exist, special propaganda work for vaccination should be organised.

Dr. F. J. BAILDON reported an anti-vaccinationist propaganda in Southport and carried his motion. Dr. LEWIS LLOYD said that as a profession doctors were behindhand in making themselves acquainted with the latest information about small-pox statistics.

*Poor-law Reform.*

While Dr. H. B. BRACKENBURY, as Chairman of the Poor-law Reform Committee, was proposing the adoption of this part of the report of Council, the chair was taken by Dr. C. O. HAWTHORNE.

Dr. Brackenbury said that in June the Ministry of Health had withdrawn their previous proposals, approved by the Representative Body last year, and substituted an entirely new set. These were tentative, and not yet in the form of a Parliamentary Bill. The cardinal principle with which the Association was concerned was the unification of all forms of health administration within the local authority. The new proposals did not give as good an opportunity for this as did the old ones, except in the areas known as county boroughs. Instead of boards of guardians being abolished, they were to persist under more convenient areas and forms of election. The Association had insisted that it was desirable for a health committee to be empowered to coöpt members of the medical profession or others interested in health administration. Educational bodies had the statutory obligation thus to coöpt. The new proposals allowed county councils, boards of guardians, and committees of management of Poor-law hospitals to coöpt persons experienced in the administration of the Poor-law. It was much more important to have on these committees people experienced in hospital administration, and pressure should be brought to bear in this direction. In reply to a question, Dr. Brackenbury explained that under the new proposals Poor-law institutions would be transferred to the county council and managed by special committees, two-thirds appointed by the Council and one-third by the board of guardians.

*National Health Insurance: Ophthalmic Clinics.*

Dr. H. G. DAIN, Chairman of the Insurance Acts Committee, said that agreement had been reached over several matters which had caused anxiety. In future a patient wishing to change his doctor would have to give a fortnight's notice and submit his insurance card to be stamped. This would prevent his leaving hurriedly in a "huff," and would do away with canvassing for medical cards. It was also hoped that a satisfactory disciplinary scheme would soon be proposed. Trouble had been caused by the very large number of claims for treatment under ophthalmic benefit. Dr. Dain then proposed:—

That the Representative Body approves the principle of providing ophthalmic benefit through clinics in large centres as an arrangement auxiliary to the existing scheme of attendance by ophthalmic surgeons privately, subject to the arrangements under which such clinics are established being approved by the Council.

He said that this was a departure from a principle to which the Representative Body was very firmly wedded, that of extending consultant services on the lines of private practice. He warned them that this was the first special service included in National Health Insurance benefit, and considerable weight was likely to be given to it in future arguments.

Dr. R. WALLACE HENRY (Leicester) reminded them that the approved society now decided whether the patient should go to an ophthalmic surgeon or an optician. When the optician was unable to deal with the case he sent a certificate to the society, to be forwarded to the ophthalmic surgeon. The societies were saying that it was only financial circumstances which made them send patients to opticians first, and the number was growing so large that it was becoming impossible for them to pay the guinea fee for the surgeon. As a result, 70–80 per cent. of insured people were sent direct to opticians. Some of the societies had set up ophthalmic clinics already, and some of the younger oculists had accepted appointments to them. If the Council had permission to go into the matter, it might be possible to formulate a satisfactory scheme for providing ophthalmic benefit through medical men to practically the whole insured population. If this could be done, the weight of opinion in favour of sending patients to opticians would be turned round, and the vast majority of people would go to the oculist. Dr. G. W. KENDALL (City) supported the motion, and said the change of policy was of great importance to the whole profession. Ophthalmic surgeons were in favour of it. Dr. E. J. PRIMROSE (Glasgow) said that the wording of the motion would give rise to the impression that a new and different principle was being accepted. The principle involved was that of giving private attendance to insured patients at a modified fee. He suggested amending the motion in this sense. The great reduction in fee involved in the clinic arrangement was only admissible if the society really was in an impoverished state, and should not be allowed to become universal.

It was agreed to substitute "suggestion" for "principle" in the first line of the motion and to add "in certain circumstances" after "centres" in the second line, Dr. Dain accepting this amendment.

Dr. P. MACDONALD (York) warned the meeting not to blink the fact that clinics had come to stay, and would be extended in other directions. Soon

most of the work under the Insurance Acts would be done on clinic lines.

Dr. E. E. BRIERLEY (Cardiff) said that the ophthalmic surgeons of Cardiff took the report of Council to indicate that the clinic cases would be those that had been to opticians first. To examine ten such cases in two hours would be impossible. They also considered that the already reduced fee was being gravely diminished when they were expected to see eight or ten serious cases at 8*s.* 6*d.* per head. Seconded by Dr. J. D. WILLIAMSON (Cardiff), Dr. Brierley proposed, therefore,

That the Council be asked to consider whether the number of new cases should be eight rather than ten.

This was carried, as was also a motion by Marylebone:

That the Council be requested to urge the Ministry of Health to provide for extended benefits under the National Health Insurance Acts.

Dr. Dain said this had already been urged repeatedly; it was a question of money and money only.

*Hospitals.*

The Chairman of the Hospitals Committee, Mr. H. S. SOUTTAR, moved and carried without discussion,

That where the remuneration of a consultant for regular periodic visits to a Poor-law hospital is on a salary basis, the amount of that salary should be a matter of arrangement between representatives of the local medical profession and the appointing authority, but regard should be had to the minimum fees laid down at the annual representative meeting, 1926, and/or to the basis of £2 12*s.* 6*d.* for consultant sessions of not more than two hours, with an allowance for mileage where necessary.

Mr. Souttar then said that the policy of the Association was that any payment a patient made in hospital was for treatment and not for maintenance. As certain paragraphs of the voluntary hospital policy appeared to weaken this position, he proposed that they be deleted. This was carried without discussion. He then proposed—

That specialist work in connexion with the treatment of patients suffering from mental disease in its early stages whether at hospitals or clinics should not be carried out by whole-time medical officers of public health or local government authorities, but on a part-time basis by medical practitioners who have special knowledge of the subject, but who need not necessarily be devoting their whole time to such special work.

This motion had called forth a strong letter of protest from the Royal Medico-Psychological Association. Mr. Souttar said that the last thing the B.M.A. wished to do was to give the impression that they wanted to exclude any group of medical men from their proper work, but it was the declared policy of the Association that as far as possible medical work should be carried out by private practitioners. Such work should not be transferred from general practitioners to those holding full-time appointments under public authorities, but there was no wish to exclude whole-time men.

Dr. E. W. MASTERMAN (Camberwell) and Dr. J. W. GILLESPIE (Belfast) proposed to amend the resolution by inserting the word "necessarily" in the phrase "should not be carried out by whole-time medical officers," and to cut out the last phrase. The motion so amended was accepted by the Chairman.

In proposing the remainder of the report under "Hospitals," Mr. Souttar said that the hospitals had met the Association over the two points of difficulty—viz., that patients should take to hospital with them letters from their practitioners, and that hospitals should be used as far as possible in a consultative capacity.

It was agreed, on the motion of Salisbury,

That the Representative Body instructs the Council to consider the formulation of a middle-class hospital policy.

*Contributory Schemes.*

Dr. Fothergill then proposed on behalf of Brighton an inclusive motion in reprobation of the inroads being made into private medical practice "by the contributory schemes which are springing up all over the country." He reminded his hearers of the evils of the old club practice days, and said that a similar position was now developing in the hospitals. Doctors were told to make their money out of the kudos of being on the staff. There was no satisfactory income limit for hospital patients, no representation of the doctor on the club scheme, and no free choice of doctor by the patient. There were now 120 of these organisations in existence, and 90 of them had definite contracts with the hospitals, entirely opposed to the B.M.A. policy. Soon the hospitals would be arranging for the specialist to see the patient in his own home. A man who paid a guinea a year to insure his house against fire was not a pauper when his house was burnt down. It should be held that when the clubs had paid premiums the patients were not objects of charity.

Mr. Souttar said the proposal had his sympathy and the matter was serious, but there was this difference from club practice: that the hospital practitioners were unpaid for their services. It was difficult to get hospital staffs to take any interest in the matter. As these proposals covered a great deal of ground he suggested their being referred to Council. Dr. Fothergill agreed to this.

*Naval and Military.*

Sir RICHARD LUCE, chairman of this committee, said there had been an increased allowance this year to officers serving in India, but efforts to make the grant retrospective had failed. There had been difficulty in getting enough recruits, for which there was now no real reason. The arrangement that men might take one year of their service in hospital was bearing good fruit.

Earlier in the meeting Sir RICHARD LUCE had proposed and Dr. F. GOODBODY seconded,

That the Representative Body of the British Medical Association, assembled in Edinburgh, congratulates Captain C. H. Vernon, a member of the Association, on having won the King's prize at Bisley for the year 1927.

This was carried with applause.

Dr. J. F. WALKER, chairman of the Charities Committee, presented the report under that heading.

The reports of the Scottish, Welsh, and Irish Committees were approved without discussion.

The secretary announced that Dr. E. A. STARLING, of Tunbridge Wells, had been elected to the Council in place of Dr. Arnold Lyndon, who, on his election to the deputy chairmanship of the representative body, became *ex officio* a member.

The following were elected to Council by the representative body: Dr. R. Langdon-Down, Sir Richard Luce, Dr. F. J. Baildon, Dr. J. A. Macdonald, Dr. J. W. Bone, Dr. H. G. Dain, Dr. C. E. Douglas, and Mr. W. McAdam Eccles.

Cordial votes of thanks were passed to the local hosts who had helped to make the stay of the representatives so pleasant, to the staff, and to the chairman, Dr. Brackenbury, who, in closing the meeting, invested his successor, Dr. C. O. Hawthorne, with the badge of office.

ANNUAL GENERAL MEETING AND PRESIDENT'S ADDRESS.

The ninety-fifth annual general meeting was held on Tuesday, July 19th. Mr. R. G. Hogarth, retiring President, took the chair, and inducted his successor, Sir Robert Philip. The President-elect, Sir Ewan Maclean, was introduced and promised the hospitality of Cardiff for 1928. The Chairman of Council, Sir Robert Bolam, proposed a vote of thanks to Mr. Hogarth, and said he had proved an astonishingly able and vigorous President. The meeting then adjourned till 8 P.M., when the President delivered in the Usher Hall, Lothian-road, the address which appeared in our last issue. Dr. Fergus Hewat, honorary

local general secretary, presented to the President delegates from the Canadian, American, and China Medical Association, and a large number of foreign and overseas guests. The Sir Charles Hastings Clinical Prize was handed to Dr. J. S. Manson, of Warrington. A vote of thanks to the President was proposed by Dr. C. O. Hawthorne and seconded by Sir Alfred Ewing, Principal and Vice-Chancellor of the University of Edinburgh. Afterwards a very large gathering was received by Sir Robert and Lady Philip in the McEwan Hall. Those who wished to dance went on from there to the Palais de Danse, Fountainbridge.

### ANNUAL DINNER.

The annual dinner, held on July 21st in the Music Hall, George-street, was more largely attended than ever before. Sir Robert Philip, who presided, was supported by the Lord Provost of Edinburgh, Lord Dawson of Penn, the Sheriff of Edinburgh and the Lothians, Earl Russell, Lord Sands, the Principal of the University, the Moderator of the Church of Scotland, the Presidents of the Royal Colleges of Physicians and Surgeons of Edinburgh, the chief officers of the Association, and others. The President was escorted to the dais by four pipers from the Edinburgh postal band, and later in the evening the haggis was accorded the same honour. Lord Dawson, who proposed the health of the Imperial Forces, spoke of the close association of the warrior and the doctor from Homeric times down to the recent war. He mentioned particularly the magnificent war service of the drifters. Rear-Admiral Bowring, in acknowledging the toast, referred to the great reduction in mortality and morbidity rates among sailors in recent years, and expressed the gratitude of the Services for the work of the medical profession. Economy in the navy, he said, was not the feeling of any responsible body of people. The toast of "The City of Edinburgh" was proposed in French by Prof. Tuffier, of Paris, who complimented the city on its beauty and its association with the great name of Lister. The Lord Provost, in replying, remarked on the pride which Edinburgh had always felt in its medical school. The 600-years-old alliance between France and Scotland had, he said, left its impress on these nations; thrift was a feature they had in common. Lord Sands, toasting the Association, described a visit to the island of Cos, which had served as a base hospital in the Trojan war. His own earliest associations with the Edinburgh medical school were coupled with the name of Dr. James Gregory. Medicine had, he feared, lost some of its picturesqueness since that time. Sir Robert Bolam's acknowledgment of this toast was, he said, the last act of a retiring executive chairman. Whether holding office or not, he would find some way of working for the honour and interests of the medical profession. The President of the Canadian Medical Association, Dr. H. S. Birkett, proposing the health of Sir Robert Philip, reminded him that McGill University had been founded by four Edinburgh graduates.

### LISTER CENTENARY CELEBRATIONS.

Wednesday, July 20th, was the day specially set apart for the commemoration of Lord Lister. The University of Edinburgh held a reception in the afternoon in the Old Quadrangle. The upper library of this building was devoted throughout the week to a fine display of personal and professional relics of Lister, as well as copies of old surgical woodcuts, engravings of Edinburgh medical worthies, and other objects of interest. In the evening the McEwan Hall was almost filled with the varied colours of academic robes and evening dress for the principal celebration. The chair was taken by the Earl of Balfour, who delivered an eulogy of Lister. He remarked on Lister's enduring affection for the two Scottish Universities which had given him his opportunity. Lister would have been a great surgeon at any period of the world's history, but he owed his unique eminence to his association with Simpson and Pasteur. Without chloroform he could not have developed his surgical technique, and without knowledge of the action of putrefactive bacteria he would not have directed his attention towards the means of combating those enemies of the surgeon. The services which Pasteur, Simpson, and Lister had rendered to mankind could not be estimated; they were outside all machinery for comparative valuation.

Sir William Watson Cheyne described the contrast between surgical wards before and after the work of Pasteur and Lister and went on to say that there had been nothing accidental about Lister's work. As a dresser he had been horrified by a severe outbreak of gangrene in the wards and had never forgotten it. Pasteur's work had given him sufficient solution of the mystery to enable him to develop a technique for the prevention of wound sepsis. It was a striking example of the practical value of pure science. Lister's contributions to the rapid expansion of surgery were obscured by the greatness of his antiseptic work. He was a pioneer in experimental pathology.

Prof. Tuffier said it was not too much to claim that the discoveries of Pasteur and Lister, applied by surgeons and physicians for 50 years, had saved as many lives as there were people in all the world. He offered to the memory of Lister the loyal gratitude of all French surgeons.

Prof. Harvey Cushing delivered the address on "Emancipators," which was printed in full in our last issue.

Prof. John Stewart (Halifax, N.S.) said that simplicity was the keynote of Lister's life and work; he loved music and children and had a keen sense of humour. A certain aloofness was due to shyness; he was anything but cold and indifferent at heart. He always carried about with him an air of otherworldliness, but the main depression clouding his last years was chiefly due, he thought, to a sense of loneliness, a mistrust of modifications of his routine which were arising and the lack of recognition of his fundamental work in pathology.

Lord Balfour announced that the prize for the best essay on "The Influence of Lister on Surgery" had been awarded to Mr. George W. Gale, and that the Royal Colleges of Edinburgh had conceived the scheme of erecting an institute to the memory of Lister.

### EXCURSIONS AND SOCIAL AMENITIES.

The Sunday excursion for representatives took the form of a long motor tour through the Scott country, including a view over Dryburgh Abbey. The party was entertained to tea at Floors Castle, the seat of the Duke of Roxburgh. The sun shone and the visibility was so good as to make the magnificent views from "Scott's point" and Soutra Hill even finer than usual. On Monday evening "The Doctor's Dilemma" and "Rob Roy" were played to full houses. There was dancing at the Palais de Danse each night, and the number of special excursions to places of historical and æsthetic interest was exceptionally large. By special invitation the Royal Scottish Academy was open to members of the Association for a private view on Thursday evening, while for others Mrs. Kennedy Fraser and her party gave a special concert of Hebridean music. Later the President and members of the Edinburgh Branch of the Association received a large number of visitors at the Palais de Danse, where Highland and Lowland dancing was kept up till a late hour. A novel pleasure was the reception by the Lord Provost and magistrates of the City of Edinburgh at the Scottish Zoological Park. The rain held off, and visitors were able to spend the long northern evening strolling round this beautiful menagerie. An afternoon reception was held on Thursday by the Ladies' Association at Inverleith House in the Botanical Gardens, and another on Friday by the Royal Medical Society at its house in Melbourne Place.

### EXHIBITION OF INSTRUMENTS, DRUGS, FOODS, AND APPLIANCES.

The usual exhibition was held in the Waverley Market from July 18th to the 22nd, and was larger than ever before. The market provided a light and spacious hall, and the abundance of flowers was a particularly pleasant feature. At the official opening on Tuesday, July 19th, the chairman of the Representative Body, Dr. H. B. Brackenbury, referred to the value of publicity and introduced Sir Robert Philip, President-elect of the Association, who declared the exhibition open. He commented on the fundamental necessity to medicine of the correlation of the vision of doctors and experimenters with the ingenuity of technicians. That happy union had been notably exemplified during the past century by the two firms of J. F. Macfarlan and J. Gardner and Son, both of which were exhibiting this year and both of which had been associated with Lord Lister. An account of the stands will be given in a later issue.

# Reviews and Notices of Books.

### COMPARATIVE PHYSIOLOGY.

*The Genetics of Sexuality in Animals.* By F. A. E. CREW, M.D., D.Sc., Ph.D., Director of the Animal Breeding Research Department and Lecturer in Genetics in the University of Edinburgh. Cambridge University Press. 1927. With 37 text figures. Pp. 188. 10*s.* 6*d.*

Dr. Crew writes very good books. Himself an active experimenter, he also has the gift of exposition, and he gives here in moderate compass a clear and interesting outline of a subject to which few people are indifferent. The first part describes the chromosome mechanism of sex determination which has been unravelled during the last 25 years. This he regards as now being settled, at any rate for a time. He passes on to discuss the physiology of sexual differentiation, the means that is by which the chromosome composition of an individual gains its expression in secondary sexual characters. All the cells of the body are either male or female according to their equipment in sex chromosomes. In insects this leads directly to the development of the sexual characters which constitute the maleness or femaleness of an individual; sex glands take no part in the process, and a male caterpillar will develop into a male moth whether it is left alone, castrated, or has an ovary implanted in place of its testis. But in mammals, as everyone knows, the sex of an individual depends not only on the sex chromosomes of the cells of which the body is composed, but on the presence of functional sexual glands, and in a vaguer way on the thyroid and other endocrine organs. The great problem which now lies open for inquiry is the nature of this connexion between the sex of an individual and the sex of his cells, and Dr. Crew's discussion of the facts at present available and his indication of the lines along which progress may be looked for is very suggestive. In one form or another he makes a good deal of use of Dr. R. Goldschmidt's idea of a time scale, which naturally leads on to chapters on sex reversal and intersexuality. Medical men would have been glad of a discussion of the sexual effect of the adrenal tumours which come within their province; the subject has been clarified lately by the demonstration that femaleness may be regained if the surgeon removes the growth. Finally, there is a chapter on the sex ratio which no one will read without wanting to find out why males die more easily than females from early fœtal life onwards. We hope that the recent extensions of his department in Edinburgh will enable Dr. Crew to find the answers to some of the many questions which he raises. Useful bibliographies are included.

### THE CLINICAL INTERPRETATION OF THE WASSERMANN REACTION.

By ROBERT A. KILDUFFE, A.B., A.M., M.D., Director of Laboratories, Atlantic City Hospital; City Bacteriologist Atlantic City, N.J., &c. Philadelphia and New York: Lea and Febiger. 1926. Pp. 203. $2.50.

THE author considers the whole question of the Wassermann reaction, beginning with its basic principles. He deals with the many problems that confront clinician and serologist alike, such as the fact that a W.R. may be positive one day and negative a few days later. There is adequate and interesting discussion on the complement-fixation reaction in pregnancy, and in neurosyphilis. A whole chapter is given up to non-luetic conditions giving false positive reactions; an equally useful chapter treats of false negative reactions. Dr. Kilduffe holds, as do all good pathologists, "that the results of the test must be interpreted in conjunction with all the other findings of the case at hand." Considering the W.R. as a test of cure, the writer emphasises that fact that a negative reaction is merely an indication of the condition at the moment, "bears no guarantee for the future, and holds no promise of permanency." Dr. Kilduffe notes that for any complement-fixation report to be of value, the test must have been carried out by a worker with extensive training and experience.

It is difficult in a short review to show just how good, and how well worth reading, is this little book.

### PYELOGRAPHY: ITS HISTORY, TECHNIQUE, USES, AND DANGERS.

By ALEX. E. ROCHE, M.A., M.D., M.Ch. Camb., F.R.C.S. Eng., Chief Assistant to a Surgical Unit, St. Bartholomew's Hospital. London: H. K. Lewis and Co., Ltd. 1927. Pp. 118. 9*s.*

THIS little book, which is founded on the somewhat slender basis of 58 personally observed pyelographies, draws largely on the experience of other observers, notably Braasch, and will prove useful to those who are learning to practise this branch of diagnostic technique. Beginning with a short account of the history of pyelographic examination of the kidneys, the author proceeds to describe the method, the solutions used, and some of the difficulties which may be met with. A series of chapters follows, in which the value of pyelography in relation to the various forms of renal disease is discussed, and the deductions arrived at are illustrated by plates.

As a well-arranged summary of the work which has been done on its subject, Mr. Roche's book has its value; the author does not claim to add to our knowledge. An introduction is contributed by Sir John Thomson-Walker.

### OPHTHALMOLOGY.

*Applied Refraction.* By HOMER ERASTUS SMITH, M.D., Assistant Surgeon, Manhattan Eye, Ear and Throat Hospital. New York: William Wood and Co. 1927. Pp. 131.

THE first thing that strikes us about this book is the entire absence of any but the most casual reference to the method of retinoscopy which to refractionists in this country has long served as their sheet anchor in the preliminary examination for glasses. Except for a few pages on the ophthalmometer, an expensive instrument which is admittedly not infallible, this author relies entirely on subjective tests. This is the more surprising in that he insists on the need for cycloplegia in any patient who has evidence of eyestrain, and this, he says, "be he seven or seventy." Indeed, according to him, in the later decades of life with a small residuum of focusing power left, the need for cycloplegia is even more urgent. This need he attributes to the unequal action of the ciliary muscle in its several meridia—a segmental action which may

partially counteract an astigmatism only revealed when the accommodation is paralysed. That this segmental action exists is not generally admitted, though in support of the theory that it does a physiological experiment of Hensen and Voelkers (the latter name misprinted in this book) may be cited. Text-books on refraction are generally discreetly silent on this point, though by their insistence on the necessity for complete cycloplegia for the correction of small astigmatic errors they implicitly support the theory that segmental accommodation is possible. An apparatus for testing the visual acuity under varying degrees of illumination is illustrated in Dr. Smith's book, and this should be useful, not only for testing the light sense, but in connexion with the prescription of tinted glasses for patients unusually sensitive to glare. The cyclophoria which sometimes is troublesome when oblique cylinders are prescribed is discussed. The relative advantages of different forms of bifocal lenses are pointed out, and there is a final chapter on the cosmetic value of glasses. We cannot recommend this little book as a complete guide to the art of refraction. At the same time anyone engaged in this work will find it worth reading, since it contains information and advice on many practical points which are not ordinarily alluded to in the text-books. Its unconventional style is a further recommendation.

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*Saving Eyesight after Mid-life.* By J. HERBERT WHITE, M.D., Instructor in Ophthalmology in the Harvard Medical School, Cambridge (Mass.). Harvard University Press. 1927. Pp. 48. 4*s.* 6*d.*

THIS little book is one of a series termed "Harvard Health Talks," and is addressed to the general reader and more especially to the middle aged. It is principally occupied with a popular exposition of glaucoma, and informs readers of the insidious nature of that disease in its chronic form. One-third of all blindness in America arising after middle life is said to be due to this disease, and the chief purpose of the book is to warn the public that periodic examination by an oculist is necessary even though vision may be apparently normal, and to reassure them as to the chances of a permanent good effect of an operation undertaken in time.

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DISEASES OF THE DIGESTIVE ORGANS.

Fourth edition. By CHARLES D. AARON, M.D., F.A.C.P., Professor of Gastro-enterology in the Detroit College of Medicine and Surgery. Philadelphia: Lea and Febiger. 1927. Pp. 1964. $11.

THE new edition of this American text-book preserves the general character of its predecessors. The book is too verbose to make a strong appeal to many English readers, but it is a merit that some mention, if only a brief note, is made of nearly every subject that can in any way be associated with the alimentary canal. The author gives no description of phytobezoars, Snapper's test for porphyrins, or the blood-sugar curves after lævulose feeding in cases of hepatic deficiency. But we have no doubt that these minutiæ will appear in future editions. The printing and illustrations are excellent.

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## JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXX., No. 3, July, 1927.—Interference Phenomena in the Action of Chemotherapeutic Agents in Trypanosome Infections, by C. H. Browning and R. Gulbrausen (Glasgow). Parafuchsin will kill *T. brucei* in mice: so will trypaflavin. But trypaflavin will not act in animals which have previously received a non-sterilising dose of parafuchsin. The therapeutic action of other substances—e.g., arsacetin—is also interfered with by parafuchsin.—The Titration of Scarlet Fever Antitoxin in Rabbits, by H. J. Parish and C. C. Okell (Beckenham). It is difficult to measure the antitoxic value of sera prepared with the scarlet fever streptococcus by their capacity to neutralise toxin in animals, but satisfactory titration can be achieved by testing their efficacy to protect rabbits against the septicæmia produced by the streptococcus itself. The values thus obtained show close agreement with human Schultz-Charlton and therapeutic tests.—Osteoclastoma (Myeloid Sarcoma) of the Human Female Breast, by H. J. B. Fry (London). A case of this rather rare tumour containing sarcomatous fibrous tissue, cartilage, osteoid tissue, and giant cells of myeloid type, with a good discussion and account of the literature.—A Statistical Study of Relapse in Enteric Fever and Erysipelas, by M. Young (London). Working on data from the Belvidere Fever Hospital, Glasgow, it appears that relapsing cases do not differ from non-relapsing cases in the duration of or degree of febrile disturbance in the primary attack. The relapse is on the average about half as long as the primary. The interval between primary and relapse tends to be longer as the primary attack is longer, and there is a slight relationship between the severity of the primary and that of the relapse.—A New Design of Porcelain Filter, by C. E. Jenkins (Salford). Adapted to filter a few c.cm. of liquid with very little loss.—Diphtheria Bacilli in Bile, by J. McCunn and A. M. L. Greaves (London). Pure cultures of *Corynebacterium diphtheriæ* were obtained from an acute cholecystitis at operation.—Cross Immunity with Rat Tumours, by S. Russ and G. M. Scott (London). Rats inoculated with tumour cells killed by X rays show afterwards a considerable degree of resistance to the implantation of the same and also of some other tumours.—Microscopic Evidence of the Different Manner of Clumping of Motile Bacteria with Somatic and Flagellar Agglutinins, by J. A. Arkwright (London). With flagellar agglutinin the bacilli are immobilised; with somatic agglutinin the free flagella continue to move the adherent bacilli.—Lamb Dysentery, by T. Dalling (Beckenham). Toxin-antitoxin mixtures given to the ewes reduces the lamb mortality from 8 to 0·9 per cent.; anti-welchii serum given to the lambs reduces it from 16 to 0·2 per cent.—Seasonal Variation in Pneumococcal Virulence, by J. F. Gaskell (Cambridge). The virulence of laboratory cultures regularly falls in the summer and reaches its maximum in the pneumonia season, December to April.—The Determination of Virulence of Pneumococci Freshly Isolated from Human Lesions, by C. H. Whittle (Cambridge). A few subcultures on agar or egg do not alter the virulence.—Demonstration of *Spironema pallida* in the Nervous System, by G. W. T. H. Fleming (Dorchester). Jahnel's method is tedious but gives good results.—A Case of Unrecognised Cancer of the Breast, by C. J. Polson (Manchester). A small scirrhous cancer of the right breast gave rise to large masses of growth in the abdomen, apparently via the lymphatics of the thoracic wall and the umbilicus.—A Qualitative Chemical Differentiation of Thyroid Secretion from Thyroid Colloid, by G. S. Williamson and I. H. Pearse (London). The secretion of the active adenoid tissue contains no biological iodine as colloid does.—Adenocarcinoma of the Ovary in a Hen, by J. Gordon and F. C. Happold (Leeds).—A Rapid Method of Examining Tissue Microscopically for Malignancy, by B. T. Terry (Nashville, U.S.A.). Thick freehand sections are stained on one side only with polychrome methylene-blue.—Proceedings of the Pathological Society of Great Britain and Ireland.—This issue of the journal contains a portrait of A. Balles Lee, some extra copies of which may be had from the editor at 17, Loom-lane, Radlett, Herts.

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BIRTHDAY HONOURS.—In the list of recipients of Birthday Honours published in THE LANCET of June 11th (p. 1247) we regret the omission of the name of Alfred Geddes Tresidder, Major, I.M.S., who was appointed a Companion of the Indian Empire. Major Tresidder is surgeon to H.E. the Governor of Bombay, and aural surgeon to the Gokuldas Tejpal Hospital, Bombay, and the Sassoon Hospital, Poona.

# THE LANCET.

*LONDON, SATURDAY, JULY 30, 1927.*


## LUNACY LAWS AMENDMENT.

A LEADING article in the *Times*, aptly entitled "The Lunatic at Large," drew public attention recently to the need for lunacy law reform. This article elicited a congratulatory letter from Dr. J. S. RISIEN RUSSELL, in which he conveyed the suggestion that medical practitioners "ought not to be vested with their present powers, but that they should be required to appear before a judicial authority and give evidence on oath as to the grounds for certification, as is required in any other class of case in which a doctor has to give evidence." Dr. C. O. HAWTHORNE, Chairman-elect of the Representative Body of the British Medical Association, said that the sole "power" that a doctor possesses in these matters is to give a written opinion or certificate to the effect that in his judgment the patient is of unsound mind and requires to be restrained either in his own interest or in the interest of the community. When such a certificate is placed with other relevant documents before the proper judicial authority (a specially selected magistrate) it is open to that authority to make or not to make an order for the patient's detention. It is the magistrate, not the doctor, who has the power to restrain the patient. The present power vested in the doctor is the signing of a professional certificate; if this is taken away every case of certification will become a judicial inquiry with copious evidence from experts and with corresponding expense and waste of professional time. Already, under the Act of 1890, the magistrate can require the certifying medical practitioner and any other witness to appear before him and give evidence on oath. The machinery of Dr. RISIEN RUSSELL'S proposal therefore exists if the magistrates consider that the interests of the patient or the public require its operation.

At the meeting of the British Medical Association the Section of Mental Diseases held a discussion jointly with the Royal Medico-Psychological Association on the recent report of the Lunacy Commission. This was opened by Dr. G. M. ROBERTSON, President of the Royal College of Physicians of Edinburgh, whose words as an ex-president of the Association and a leading psychiatrist carried weight with the meeting, as they had previously carried weight with the Royal Commission responsible for the Report. Dr. ROBERTSON found that the Provisional Treatment Order, the second of the procedures recommended in the Report for the involuntary treatment of mental cases, was open to serious criticism in that the signature of one doctor alone was required. The doctor would often be a general practitioner, and might possess little experience in the treatment of mental cases, but the procedure was to be legalised by the intervention of a justice of the peace who would have no medical experience whatever. He held that the addition of the legal authority in no way served the interest of the patient, laid stress on the absence of proved cases of improper detention as taking away the argument for the intervention of the justice, and urged that for the purposes of the Provisional Treatment Order the justice of the peace should be replaced by the Board of Control. Several speakers on the same and other grounds favoured the elimination of the judicial authority unless it were possible to select magistrates with knowledge of the subject, and to provide through local authorities specialists to assist the general practitioner. Dr. RISIEN RUSSELL welcomed the Provisional Treatment Order as supplying the medical profession with a claim for protection, and thought that the examination of the patient by a legal authority would be an advantage; if the justice had no medical training he would view the matter from a standpoint different from the medical one. This argument was countered by an explanation from Earl RUSSELL, a member of the Royal Commission on Lunacy Reform, who interpreted the recommendation of the Report as the introduction of a pure formality to meet public apprehensions which must prevail with the legislature. He pointed out that a vast body of uninformed and uneducated public opinion regarded doctors as too ready to certify, and, while it was needless or undesirable for the justice in these circumstances to have medical knowledge, the part he was asked to play was still useful, his duty being to see, and simply to see, that due care had been taken in the patient's behalf, and that all the legal papers were in order. But Earl RUSSELL looked also at the Board of Control as the real safeguard, and so came into line with the view that involuntary treatment was not an infringement of a patient's liberty to be compared with detention in other circumstances. This valuable discussion closed without any formal summing-up or resolutions, but its general outcome was, in spite of the critical remarks here alluded to, an expression of satisfaction with the Report. The objections to the introduction upon the scene of the justice of the peace for the main part were based upon the views of clinicians that any circumstances which embarrassed the rapid commencement of treatment in respect of early mental disease ought to be anxiously avoided, and it is to be hoped that ultimate legislation will reflect this view.

It is a fallacy to suppose that the proceedings under the Lunacy Act are or can be entirely assimilated to other judicial proceedings. The grievance of the certified patient, which takes the form of actions such as Harnett *v.* Bond or De Freville *v.* Dill, is that he has wrongfully been deprived of his liberty. There can be no analogy to the common law action for damages for wrongful imprisonment. In the nature of things lunacy proceedings have the essential peculiarity that the lunatic cannot conduct anything like a defence to the allegation of lunacy. In every other form of judicial proceeding anyone in the position of a defendant is entitled to a clear statement of the allegations made against him, and is entitled to make his reply thereto. In lunacy proceedings this is impossible; moreover, considerations of urgency seldom permit the dilatory and protracted preliminaries of ordinary judicial actions. But if the analogy of lunacy cases to ordinary judicial trials cannot be pressed, it remains the fact that doctors who certify a lunatic are no more than witnesses who supply evidence upon which—as in ordinary criminal or civil trials—a judicial authority makes up its mind. At present the medical practitioner is being asked to certify at the risk of an unlimited personal liability in damages—a threat or penalty to which no other kind of witness is exposed. This is the point at which the lunacy law must be reformed if the country does not desire to see doctors deterred by a series of adverse verdicts from volunteering their evidence in future. The medical

profession has nothing to reproach itself with unless it be the fact that medical science has not yet surmounted the almost impossible obstacles in the way of evolving a standard definition and standard tests of insanity. If such tests were available the certifying doctor who had applied them might at least feel more safe from ex-post-facto criticisms launched with the support of members of his own profession.

## THE NEW DIPLOMA IN BACTERIOLOGY.

THE Senate of the University of London have instituted an academic diploma in bacteriology, and the London School of Hygiene and Tropical Medicine as we recently announced, have, as from Oct. 4th next, provided a full-time course in advanced bacteriology covering one academic year. Bacteriology thus takes its place as a recognised subject of post-graduate study, and this recognition cannot fail to alter materially the status of an important branch of science. Technological study of bacterial life, whether in its relation to epidemiology, to agriculture, to brewing, or to the preparation of leather, has prepared the way for the study on its own account of the life history of one of the most interesting groups of the vegetable kingdom. Such study is overdue. Pathological bacteriology is already hampered by the limitation of our knowledge on fundamental bacteriological matters, but the lacuna is not felt only by medical science, and entrance to the prescribed course is not to be confined in any way to those possessing a medical qualification. Such limitation would indeed be altogether undesirable, for though the paternity of medicine is clearly stamped on the growing science, it has already advanced well beyond parental control, and must set up house for itself. The diploma is open to graduates in medicine, science, or pharmacy of London or of any other approved university. Registered medical practitioners or other non-graduate students who have obtained a qualification and undergone a previous training which, in the opinion of the University, has fitted them to profit by the course, may be admitted after individual approval. At the same time the University has recognised that the training necessary for a medical bacteriologist differs in essential respects from that required by a student who proposes to apply his knowledge of bacteriology in some other direction, and the course of study, as well as the examination for the diploma, is divided into two parts. In the first the student will be concerned with bacteriological principles and with general technique. In the second he will study the application of these principles to clinical medicine, to hygiene, or to industry, as the case may be. Each student will be required to select one of these three special branches of study when entering for the course. It is probable that the teaching of applied bacteriology will, in time, be undertaken by different schools of the University whose staff and equipment enable them to deal effectively with particular aspects of this diffuse and widely ranging subject. Now that a start has been made, facilities will inevitably grow with the demand, but in the immediate future it seems likely that the majority of the students will be concerned with the application of bacteriology to medicine or hygiene, since facilities for the teaching of such students are already available.

All those who are concerned with medical science will, we think, welcome the advance which has been made. The provision of adequate facilities or study in London was the first essential step, but no one familiar with medical education will dispute that the creation of an academic diploma is a natural development, in the absence of which the attempt at serious teaching might well have been abortive. If a post-graduate student is to devote a complete academic year to the study of his subject, it is right that he should receive some mark of his attainment upon the satisfactory completion of his course, and, though we all recognise the faults and limitations of the examination system, a satisfactory substitute has yet to be found. With the London diploma following so soon upon the similar diploma at Manchester, it will not be long before every applicant for a bacteriological post will be expected to present evidence of adequate training in his subject. In this connexion we would urge the extreme importance of maintaining a high standard of attainment. It is an altogether mistaken view that a diploma course is, of necessity, in some way inferior to a course leading to a degree. A course of instruction can be anything that teachers and examiners like to make it; the higher the standard set, the greater will be the attraction to the best type of student. London is the natural home within the Empire of serious post-graduate study, and it is of the first importance that the distinctions which it can confer should not be cheaply won. We note with satisfaction the regulation which states that a mark of distinction will be placed against the names of those candidates who show exceptional merit. The convention that candidates at a diploma examination should be dealt with as though they showed a dead level of attainment has done a good deal to stultify post-graduate study. The pass level, even a high one, falls short of academic distinction, and the student who has done exceptionally well deserves to have that fact recorded.

Events of the last few years suggest that a renaissance of bacteriology is at hand, and at the moment the demand for skilled workers from various parts of the British Commonwealth has outstripped the available supply. The stimulus given by the academic recognition now accorded to the subject by the Senate of London University should presage a revival of interest in an essential branch of science. The London School of Hygiene and Tropical Medicine are to be congratulated on having so opportunely made provision for meeting the serious shortage of trained bacteriologists by establishing a course of study under Prof. W. W. C. TOPLEY, at No. 6, Gordon-square in October next, instead of waiting for the opening of their new building. The temporary department should tide over a period which, it is hoped, will not exceed two years.

## THE CAUSE OF ACROMEGALY.

IN diseases which are comparatively uncommon and run a long course it is unusual for an autopsy to be done under the direction of those who have observed the case over a long period. Special interest, therefore, attaches to a recent monograph [1] in which Harvey Cushing and L. M. Davidoff record four cases of acromegaly, with complete clinical histories and post-mortem findings. Their observations are of considerable importance. As they rightly point out, among the criteria essential to the definition of any disease as an entity is the association with it of definite histopathological changes in a certain organ or organs; and to be convincing these changes

[1] Rockefeller Monograph No. 22, 1927.

must in no case shrink beyond a certain minimum. In acromegaly it has been difficult to identify the morbid lesion which causes the distinctive overgrowth, the difficulty being due to the variable secondary symptoms of the malady and still more to its widespread pathological manifestations. The chief argument has centred round the ætiological rôle of the hypophysis, and a notable advance was made when H. M. Evans and J. A. Long [2] brought forward dependable proof that the hormone of growth, which alone can account for acromegaly and gigantism, is secreted by the epithelial portion of the gland, and almost certainly by the chromophilic cells of the anterior lobe.[3] Further evidence has been gradually accumulating from the examination of fragments of hypophyseal adenomata removed at operation in cases of acromegaly, and valuable information about the histology of the hypophyseal lesion has been obtained. From the examination of 35 such cases in Cushing's clinic, P. Bailey and L. M. Davidoff [4] showed that chromophilic cells containing distinctive granules are always found in such cases, whereas in the types of adenoma associated with non-acromegalic manifestations the cells are invariably chromophobe in character. The hyperpituitary conception of acromegaly has therefore considerable support, but much is still obscure. The post-mortem findings described in Cushing and Davidoff's monograph throw a considerable amount of light on the problem. The four cases were of different clinical types, and illustrate the kaleidoscopic nature of the disease. In one patient, a man of huge frame, the general splanchnomegaly and widespread changes in the endocrine series quite overshadowed the small hypophyseal lesion. In another, an acromegalic giant, the picture was dominated by symptoms due to the neighbourhood of the tumour. The two other patients were small. In one of them an enormous intracranial adenoma, unsuspected during life, was masked by cardiovascular and diabetic symptoms, and autopsy revealed adenomata in many of the ductless glands. In the other, a woman who died from diabetic coma, the post-mortem findings were relatively insignificant and the hypophyseal tumour was small. The only constant findings in all the cases were the commonly recognised overgrowth of the mesodermal tissue, the less commonly emphasised and disproportionate splanchnomegaly, the more or less general polyglandular anomalies, accompanied by a tendency to adenomatoses, and a central hyperplasia (two cases), or an adenoma of the hypophysis (two cases). In all four cases the cells composing the lesion contained demonstrable acidophilic granules, and the authors believe that these features are always present in acromegaly. They state that extracts of the part of the gland in which these cells are situated are capable of producing, in an experimental animal, overgrowth not only of the mesoblastic tissues but splanchnomegaly as well, together with changes in the ductless glands comparable to those seen in acromegaly and gigantism. They consider that the anterior lobe of the hypophysis is the keystone of the endocrine arch, and regard it as almost certain that a hormone from its granular acidophilic cells is the cause of acromegaly and gigantism in man.

[2] Anatomical Record, Phila., 1921, xxi., 62.
[3] Proc. National Academy of Sciences, Baltimore, 1922, viii., 38.
[4] Amer. Jour. Path., 1925, i., 185–207.

# Annotations.

"Ne quid nimis."

## THE SOCIETY OF APOTHECARIES AND THE TEACHING OF MIDWIFERY.

THE Examinations Committee of the Society of Apothecaries of London has drawn up a report which is to be presented shortly to the Court of Assistants of the Society and which predicates a departure of great educational interest in the work of the Society. For this report recommends the Society to institute at an early date a diploma indicating specialised knowledge of the subjects of antenatal care, midwifery, and infant welfare. The diploma it is proposed to grant to registered medical practitioners who have been engaged in post-graduate study of the particular subjects, both in practice and theory, and a high standard of professional knowledge will be guaranteed by a stringent examinational test. It is intended to leave no doubt whatever as to the intensive character of the work done by the candidates for the new diploma, or as to the character of the examination being one of honours standard. The movement of the Society is one that will meet with general approval, for such a diploma will be specially adapted to the needs of the practitioner. Apart from the fact that a doctor may wish to show that he possesses a knowledge and experience in these subjects of a higher grade than that demanded for legal qualification, the acquisition by a large number of doctors of the diploma must lead to a higher standard generally of gynæcological training. How much this is needed has been the subject of debate in the proceedings of the General Medical Council and before medical societies on many occasions, when the lack of opportunities afforded to medical students for the sound study of obstetrics and gynæcology has been a matter of general regret, and has been seen to present educational and institutional problems that cry for solution. The invitation of the Society of Apothecaries to the post-graduate study of these subjects is therefore timely.

## PHOSPHATIC CALCULI AND DIET.

PHOSPHATIC calculi, forming stones in the bladder of rats, seem to have been first associated with a dietetic cause by T. B. Osborne and L. B. Mendel [1] in 1917. They noticed the occasional occurrence of stones among their experimental animals, more particularly in their earlier work, and when they made a survey of the diets given to the rats in which these stones were found at necropsy, they were able to make the following generalisation: "In every instance where calculi developed the animals were without an adequate source of the fat-soluble vitamin for some time." They also noted that in their earlier work they had often used diets which were deficient in fat-soluble vitamin, whereas later this deficiency had not been permitted. Two recent papers on the subject agree in confirming Osborne and Mendel's observations. From the Imperial State Institute for Nutrition at Tokyo, directed by Dr. Tadasu Saiki, comes a paper by Yoshitomo Fujimaki,[2] in which deficiencies in the vitamins A, B, and C or in combinations of them, in the minerals calcium and phosphorus, and in protein, are examined as possible causal factors in stone in the bladder of rats. As a result of his investigations Fujimaki found that a deficiency in vitamin A regularly produced calculi not only in the bladder but also in the kidney and gall-bladder. The first did not develop consistently until the rats had been on the diet for 12 weeks or more; renal stones took a longer time and gall-stones longer still. The

[1] Jour. Amer. Med. Assoc., 1917, lxix., 32.
[2] Progress of the Science of Nutrition in Japan. By Tadasu Saiki. League of Nations Health Organisation. 1926. (Obtainable from Messrs. Constable and Co., London.)

rats were kept alive for these long periods by being occasionally given a normal diet for a short time; the principal difference lay in an addition of cod-liver oil. Fujimaki points out that the change from the deficient diet to the one containing cod-liver oil was accompanied by a change in the reaction of the urine from alkaline to acid. He was actually able to demonstrate that stones, detected by X ray, disappeared after the rat had received a course of cod-liver oil. Lieut.-Colonel R. McCarrison [3] has obtained very similar results. The diet he used was different and probably deficient in more factors than was Fujimaki's. He found that stone in the bladder had not developed in rats killed after eight weeks, but only in those which had been given the diet for a longer time. In this diet, relative poverty in vitamin A was only one of the defects which he recognised, lack of good protein, and an excess of phosphates being others. From these three pieces of work it seems fairly safe to conclude that a long-continued deficiency or partial deficiency in fat-soluble vitamins is an important ætiological factor in stone in the bladder of rats. It is rather surprising, however, to find that vitamin A is spoken of throughout as if it were the only fat-soluble vitamin; in all the experiments vitamin D was just as deficient, but this deficiency is never mentioned in discussing the ætiology. In 1917, when Osborne and Mendel wrote their paper, these two vitamins were not differentiated, but no reason is apparent in the work of Fujimaki or McCarrison (carried out in 1926) why a deficiency or an addition of vitamins A and D should be spoken of as an addition or a deficiency of vitamin A only, nor why the whole effect observed is ascribed to this vitamin. Possibly it is the only factor concerned; its absence is believed to lower immunity, and if the deposition of phosphatic calculi is regarded as of infective origin the modus operandi of the vitamin becomes intelligible. But there is certainly no definite proof of the supposition in any of the work described here.

## GROUP MEDICINE IN PRACTICE.

IN this country coördinated work in medical practice is still in the experimental stage, and thus far, clinics have almost always been modelled on American lines. That is to say, that one person—in each case a physician—has acted as head of a number of regional specialists of whose work he is the ultimate arbiter. The objection to this method lies in the fact that the fate of the patient is at the discretion of an individual who retains the power of rejection of any evidence submitted by technical subordinates, should such evidence clash with his own preconceptions. Success in practice is mainly due to two factors, a theoretical knowledge of disease and the ability to make a diagnosis by a process of deduction from the heterogeneous symptoms displayed by a given patient. In proportion to the allegiance which the physician owes to the one or the other factor will he belong to the category of those who by excess of erudition never enunciate a finite opinion, or of those who, trusting too much to imagination, become the prey of obsessions. In other words, success is the reward of caution in avoiding pitfalls, or of occasional brilliance in diagnosis or treatment sufficient to overshadow failures. Group medicine alone offers the patient an escape from the Scylla of excessive caution and the Charybdis of dogmatism. In genuine group practice each opinion contributing to a diagnosis is primus inter pares, adduced at a round-table conference to which the patient's own doctor is invited. Each opinion is weighed in conjunction with all the others and a majority diagnosis based on established facts results. It is obvious that if opinions are to carry weight at a round-table conference they must emanate from men of recognised authority, and hence the number of groups working on these idealistic lines has economic limits. Further, to maintain the independence of such opinions group work should be an addition to the private and hospital practice of the members composing the group. If confined to diagnosis only, group work can hardly be a paying proposition because the public could not afford fees commensurate with the time and labour involved. Beds and treatment fees are essential to make the venture economically sound. There is, however, an objection to group work which is not commonly emphasised, and yet lies at the root of many of its difficulties. Successful group work demands group temperament. In the current number of the *Boston Medical and Surgical Journal* Dr. P. E. Truesdale surveys the subject of group medicine and sums up in its favour. He recognises this factor of temperament when he says, "group practice is essentially a young man's enterprise," and again "the original personnel of a group should be friends possessing a bond of sympathy and stable companionship; their interests, aims, and ideals should be identical . . . . They should be willing to subordinate individuality and make sacrifices for their common purpose; they should be charitable towards their co-workers, whose faults are inevitably exposed more often than when practising alone." In short, the group temperament may be best defined by that essentially British expression "sporting," and it seems that the most successful group will be composed of those whose past education has included some form of team games. Whatever may be said in detraction of athletics, it does cultivate two essentials to group practice, a sense of humour and level judgment. The administrator of a group should not merely be a man of all-round medical attainment, but should have had some experience of leadership—Dr. Truesdale would have him a past athletic leader, with, if possible, the training of a barrister. A barrister with a medical education might, indeed, be the ideal pilot if only for the reason that a barrister's training involves the marshalling of facts to the exclusion of fancies, but in visualizing the ideal chairman of a clinical committee we must not insist on so much equipment that no candidates will appear fit for the post.

## DIATHERMY IN THE TREATMENT OF DEAFNESS.

BELIEVING that about 90 per cent. of deafness is caused by obstruction of the Eustachian tube, Dr. Maurice Coelst,[1] of Brussels, has devised a method of treating these strictures by the topical application of a high-frequency current in the form of diathermo-coagulation, which is the form of diathermy ordinarily used for surgical purposes. As a preliminary, the pharyngeal orifice is examined with the salpingoscope, and the length and diameter of the stenosis is ascertained by the passage of bougies. A Eustachian catheter of insulating material is necessary—the author employs one made of ebonite—and a bougie of spring-steel about 0·3 mm. in diameter tipped with a small button of solder. The nose and Eustachian orifice are anæsthetised by applications of stovaine-adrenalin solution, and the indifferent electrode is applied to the lower part of the corresponding ear. The steel bougie is passed through the stricture and a current of 350 milliampères is turned on; after 3 seconds the bougie is slowly withdrawn through the stenosed portion of the tube during a further 6 or 7 seconds, after which the current is turned off. The ensuing reaction makes the patient deafer for a fortnight, after which he should have a further catheterisation. Dr. Coelst says that the characteristics of the cicatricial tissue resulting from diathermy are suppleness, absence of retraction, and lack of any tendency to produce granulations or adhesions. He has treated 15 cases by this method, in all of which there had been no benefit from other forms of treatment. Two of the patients were lost sight of; but in all the remaining 13 the patency of the Eustachian tube was re-established, this being confirmed after six months in seven of them, and

[3] Indian Jour. of Med. Res., 1927, xiv., 895.

[1] Bruxelles-Médical, July 3rd.

after a shorter time in the remaining six. In 11 cases there was a very marked improvement of hearing, and Dr. Coelst claims that none was made worse; vertigo disappeared in one case and tinnitus ceased in three cases. Although all aurists will not agree that Eustachian obstruction is the cause of 90 per cent. of deafness, it is at any rate a fruitful source of this affection. If this method can be shown, on a larger number of patients and with a greater lapse of time, to cure Eustachian strictures and to be reasonably free from danger, a considerable advance will have been made in the treatment of a very common and distressing disability.

## PEPTONE INJECTIONS IN THE TREATMENT OF MIGRAINE.

THE possibility of migraine being due to protein supersensitiveness has frequently been suggested, and cases often occur in families in which asthma, urticaria, and other diseases of this class are common, although migraine itself is such a widespread disease that statistical conclusions tend to be fallacious. In the current number of the *American Journal of the Medical Sciences*, Dr. F. E. Ball, of Chicago, gives an account of the results of treatment in 20 cases. These cases were selected in so far as all of them had proved resistant to the commoner forms of treatment, such as regulation of diet and administration of iodine. The technique followed was to give an initial dose of ℥v. of 5 per cent. solution of peptone intravenously, followed after three or four doses by further injections in which the dose was increased by ℥v. each time until a maximum of ℥xxv. was reached. If no benefit followed a series of eight to ten injections the treatment was discontinued and regarded as a failure. When, however, the result was favourable, the time-interval between injections was gradually lengthened until the longest interval was found that secured freedom from headache, the injections being continued accordingly. The result in this series was that 50 per cent. of the cases were failures, seven cases (35 per cent.) were markedly improved, and three (15 per cent.) somewhat improved. When it is remembered that care was taken in the first place to select resistant cases these results must be considered as satisfactory. Dr. Ball was unable to discover any clinical or ætiological signs indicating which patients might be expected to receive benefit; but in all the patients who got marked relief visual disturbances which normally preceded the headaches continued at the time, though the full attack failed to mature. In the same paper the writer considers what association, if any, there may be between migraine, asthma, hay fever, urticaria, epilepsy, and eczema, but upon careful analysis of 1000 unselected family histories he is unable to find figures bearing out the common conception of a close relationship between these diseases, with the exception always of an association between hay fever and asthma.

## MEDICAL PRACTITIONERS AND FELDSHERS IN LITHUANIA.

THERE are at present in Lithuania 476 properly registered doctors of medicine, 276 dentists, 353 feldshers, 270 midwives, 152 sisters of mercy, and 8 masseur specialists. There are also, we learn from the Northern News Service, 48 hospitals, with 756 beds, and three sanatoriums—viz., at Varena, Birstonas, and Kulatovoja. With a population estimated at about 2,000,000, it will be seen that there is, approximately, one registered doctor to every 4000 persons, one dentist to every 7000, one feldsher to every 6000, and one hospital bed to every 2300. By way of comparison it may be mentioned that in the British Isles, taking the population as well under 50,000,000, there are about 50,000 registered medical practitioners (including, of course, a proportion not in practice) and 15,000 dentists now on the Dental Register. The proportion of hospital beds to the population is locally so capricious as to make an average figure misleading. In this country we have nothing corresponding to the "feldsher." Lithuania has, no doubt, inherited this form of semi-qualified practitioner from the Russian Empire of which it was formerly a part. The origin of the feldsher system is of interest. In Peter the Great's Medical School in Moscow the most severe punishment for an erring student was expulsion from the school to serve in the ranks of the army. A less drastic punishment—reserved especially for students who repeatedly failed in their examinations—was to send them to serve, not in the ranks, but as barbers and blood-letters to the regiments. A little later a second category of military feldsher was created; a number of the sons of soldiers were trained in the arts of blood-letting and of nursing generally, and these helped to relieve the students by whom at that time the nursing in the military hospitals was mostly done. It was only after the emancipation of the serfs in 1861 and the creation of the system of *zemstvo* government that a class of civilian feldshers came into existence. Before the war they played an important part in the Russian medical system. There were large areas where no qualified doctor was to be found, and where the people were wholly dependent on the services of the feldsher. The system was no doubt a far from ideal one, but it was perhaps the best attainable under the conditions that prevailed. The feldsher's training was far from negligible, and his services were undoubtedly preferable to those of the "wise man" or "wise woman" of the village, to whom alone the peasant could otherwise have recourse. The whole question of "feldsherism" was described and discussed at great length by Dr. F. G. Clemow in THE LANCET [1] at the time of the International Medical Congress held in Moscow in 1897. Whether the system still prevails in Russia we are not in a position to state. In Lithuania, it would seem, there are approximately three feldshers to every four registered practitioners.

## THE ÆTIOLOGY OF ERYTHEMA NODOSUM.

THOUGH the evidence of the last few years seems mainly to be in favour of regarding erythema nodosum as an expression of tuberculosis, nevertheless arguments are still being advanced in support of the hypothesis that it is produced by the organism or organisms responsible for rheumatism in childhood. Of the three rheumatic affections—acute polyarthritis, chorea minor, and acute endocarditis—the first is apparently the one most often correlated with erythema nodosum, and in many accounts of this condition attention has been drawn to the coincidence of pain or swelling in the joints of the affected limbs. An examination of the relationship was therefore undertaken by Dr. Albin Landau,[2] at Dr. Wallgren's Children's Hospital in Gothenburg, and at this hospital in the period Jan. 1st, 1922, to Sept. 1st, 1926, records were kept of all the cases of erythema nodosum on the one hand, and of acute rheumatic polyarthritis, acute endocarditis, and chorea minor on the other. On the record-sheets a special place was allotted to erythema nodosum, so that if there was a history of this complaint it would not be overlooked. It was found that among the 130 cases of erythema nodosum treated in this period there was only one in which the relatives could give a history of rheumatism. Among the 136 cases of rheumatism belonging to one or other of the three rheumatic categories mentioned above, there were four in which a history of erythema nodosum could be obtained. In all five cases in which the patients had suffered from both complaints the Pirquet reaction was positive, and in as many as three of these cases there were signs of pulmonary disease of a tuberculous character. Considering how common both erythema and rheumatic affections are in childhood, the fact that there was a history of

[1] Medicine Past and Present in Russia, supplement to the LANCET, August 7th, 1897.
[2] Acta Pædiatrica, 1927, vi., Fasc. 3–4.

erythema nodosum in about 3 per cent. of all the rheumatic cases can hardly be considered evidence of an ætiological relationship. In support of this negative conclusion may be added the interesting observation that the age-incidence of the two diseases was not identical; erythema nodosum began to appear after the age of 2 years and was commonest between the ages of 3 and 10, whereas the rheumatic complaints did not become frequent till after the sixth year. Nor was the seasonal prevalence altogether the same, for the rheumatic complaints were seen most often in the winter (especially January) and spring, whilst erythema nodosum was commonest in the spring (especially May). No definite conclusion, of course, can be based on this small series of cases, but the problem is interesting, and further attention might well be given to it.

## AN ENDOWED RESEARCH INSTITUTE.

THE new pathological laboratory and research institute at the City of London Hospital for Diseases of Heart and Lungs, Victoria Park, the gift of the Prudential Assurance Company, was opened on July 19th by Mr. Neville Chamberlain, Minister of Health. Sir Alexander Kaye Butterworth, Chairman of the hospital, in acknowledging the generous gift of the Prudential, announced that the necessary additional cost of equipping and fitting out the laboratories had been partially met by an anonymous donation of £500 and by a contribution of £400 from the Ladies' Association. He was further desirous of building up an endowment fund for research, and a start had been made by a gift of £250. Mr. A. C. Thompson, the Chairman of the Prudential, in welcoming the Minister, mentioned that his company had decided to provide the remainder of the money necessary for equipment, a further sum of £400. Mr. Chamberlain said that no Government department was engaged in such an unceasing warfare as was the Ministry of Health. In this battle against disease he realised the extraordinary extent to which the public was served by voluntary efforts and by the sacrifice of individual citizens and groups of citizens. Pulmonary tuberculosis, heart disease, and diseases of the respiratory system were three of the first five diseases in order of deadliness. In the last ten years the mortality-rate of pulmonary tuberculosis had been reduced by nearly 28 per cent., that of respiratory disease by 34 per cent., and of heart disease by 3 per cent. From a national point of view, over 2½ million pounds was spent annually out of the rates and taxes upon the treatment of civilian cases of tuberculosis alone, and in considering the national loss a great deal had to be added to that figure for the waste of productive power and disablement. There were two directions in which he hoped it might be possible still further to reduce this drain upon the national resources—viz. (1) the improvement of the means of diagnosis, particularly perhaps in cancer and tuberculosis; (2) the provision of post-graduate education which would enable the general practitioner to keep up to date. He welcomed the recognition by one of the great companies connected with the National Insurance schemes of the necessity for looking ahead and making provision for work which would ultimately be for the benefit of the country as a whole. After the opening ceremony a garden party took place at which Lady Maud Carnegie was hostess, and the new laboratories were opened to visitors.

## EPIDEMIC CATARRHAL JAUNDICE.

IT has long been recognised that the mild type of jaundice occurring especially in children and young adults tends to become epidemic from time to time. Its low mortality and the relative safety with which the disease can be treated in the general wards of hospitals have perhaps led to under-emphasis of its true infective nature; but most practitioners, and particularly those engaged in charge of schools and institutions where young people live in close contact, have from time to time observed outbreaks involving a number of cases. The Ministry of Health has just issued a report [1] on the subject by Dr. M. T. Morgan, of the Ministry, and Dr. H. C. Brown, of the Wellcome Bureau of Scientific Research. Their work deals with an outbreak of jaundice which occurred in a number of villages simultaneously in the Midland and Eastern Counties of England during the winter of 1925; more than 200 persons were affected, most of whom were young children, and except in two cases the course of the disease was mild and without serious consequences or sequelæ. Only one patient died, and it is perhaps worth remarking that in this case the clinical phenomena were somewhat atypical in that the illness was very severe from the beginning and was unaccompanied by pyrexia; the post-mortem appearances were those of acute hepatic atrophy, and there was a notable absence of pathological changes in any organs besides the liver. The importance of the other case which is recorded as serious is perhaps over-emphasised in the report as the child was well within a month of the onset of the disease. In general it may be said that the clinical features of this epidemic were those familiar to all medical men under the name of catarrhal jaundice. Owing to the obviously infectious nature of the malady special pains were taken to exclude the possibility that *Leptospira icterohæmorrhagiæ* was the cause of the disease, but inoculations of blood and urine into animals were uniformly unsuccessful in producing lesions characteristic of spirochætosis icterohæmorrhagica, and these experiments were so carefully controlled by different observers that it may be accepted as proved that the infection was not of this nature. In 1924 G. L. Gulland and George Buchanan [2] reported a small epidemic of spirochætal jaundice in East Lothian, but that appears to be almost the sole instance of an epidemic of the kind in Great Britain. In the August number of the *Edinburgh Medical Journal* T. J. Mackie and D. G. S. McLachlan record an outbreak of jaundice of exceedingly mild type occurring in five children attending an Ayrshire school, two adult members of one of the families also being affected. Spirochætes similar to atypical leptospiras were found in the urine of three of the four cases examined, but animal tests were negative, a result ascribed by the authors to devitalisation of the infecting organism by the acid and bile-containing urine. No information was obtained regarding the initial source of infection in this outbreak. Investigation into the causation of the milder form of epidemic jaundice is continuing, and it is to be hoped that the present report of the Ministry is preliminary. What is clear, even now, is that the conception of this disease as being due to a temporary blockage of the common bile-duct by a plug of inflammatory exudate is supported neither by clinical nor by laboratory evidence. Perhaps the most useful lesson which has been learned from the study of the van den Bergh and other tests of hepatic function is that cases of so-called catarrhal jaundice are invariably associated with the true hepatitis. The Ministry's report furnishes additional evidence in this direction.

## EPSOM COLLEGE.

THE seventy-fourth anniversary of Founder's Day was celebrated at Epsom College last Saturday, when H.R.H. Prince Arthur of Connaught gave away the prizes, addressed the boys, and afterwards opened the new pavilion. To the casual observer, school speech-days bear a remarkable similarity year after year. There were, however, several reasons why those responsible for the welfare of Epsom could regard this particular anniversary as a milestone on the road of progress. In the first place, the presence of Prince Arthur showed a continuation of the interest that the Royal Family has always

[1] Reports on Public Health and Medical Subjects, No. 42. H.M. Stationery Office. 9d.
[2] Brit. Med. Jour., 1924, i., 313.

displayed in the school. Secondly, this present year has seen the completion of the penultimate stage in the council's plans for the advancement of the school, whereby it takes its place among those with a muster roll of 400. Yet another event of importance, especially to the boys themselves, was the opening of the new pavilion, while the presence of a large number of old boys among the thousand guests was a pleasant indication of their interest and support. Prince Arthur divided his address, which was essentially for the boys, into two parts: the fine part in life to be played for the welfare of the community by those of them who were destined to become doctors, and the great opportunity offered by emigration to those who had not yet chosen their career. From his own personal experience of South Africa, he could assure them that successful careers could be made in the Dominions and Colonies by public school boys of the right stamp possessed of grit and a capital of £1000 to £1500, who were prepared to take up agriculture. When Dr. Raymond Crawfurd became chairman of the council some five years ago certain plans were formulated, which aimed at the increase in numbers of the boys of public school age from 250 to 400. To achieve this has necessitated an expenditure of over £40,000 in bricks and mortar, but the result is that there are now 387 boys, who have a beautiful chapel, up-to-date chemistry and science classrooms, with many other amenities of public school life that were previously lacking. As regards the pavilion, it is worthy of note that less than a year ago old boys and parents were first asked to subscribe. Within six months, in spite of the general strike and the ensuing coal strike, £2700 had been raised, and within another six months the pavilion had been built. It provides accommodation of modern type in the way of washing, changing, and dining-rooms, seating accommodation for all the college needs for years to come, a "tuck shop," and premises for the ground staff's accommodation. Messrs. C. E. Barry and Son, the architects, presented the design as a donation to the Pavilion Fund, Mr. Barry, junior, being himself an old boy. The headmaster (Mr. A. C. Powell), in his annual report, spoke of a very satisfactory position in school life. Chief among the successes was the senior open science scholarship at Jesus College, Cambridge, won by E. A. Marsh, who achieved the unusual by passing the B.Sc. examination of London University while still at school. As a result of bequests, two new entrance scholarships, one of £120 per annum and one of 100 guineas per annum, will be made available for open competition.

## A MEETING OF NEUROLOGISTS.

THE American Neurological Association several months ago accepted an invitation from the Neurological Section of the Royal Society of Medicine to hold its annual conference this year in London, and to have a series of joint meetings with English neurologists. Thirty-four of the visitors, many of them accompanied by their wives and daughters, arrived in this country on Friday of last week, whilst others were already in this country. The proceedings began on Monday evening with the reception of the visitors at the Royal Society of Medicine. Sir James Berry (President of the Society) and Lady Berry received the guests in the library, and there was a large attendance both of visitors and Fellows. Among the former were Dr. Charles Dana (President of the American Neurological Association), Dr. F. Tilney, Dr. H. A. Riley, Dr. B. Sachs, Mr. Penfield, Dr. Cornwall, Dr. N. W. Winkelman, and Dr. I. H. Weisenburg (Secretary of the Association). After the reception Sir James Purves-Stewart, this year's President of the Neurological Section of the Royal Society of Medicine, gave a lecture entitled "Mount Athos," in which he described his visit in 1916 to that remarkable community, and showed many lantern slides of its monasteries. He explained the organisation of the monastic republic, and the exclusion from it of every female, human or animal—"no cows, no milk, no hens, no eggs." The architecture of the monasteries, many of which date from the tenth century, was illustrated, and some account was given of life within the walls. The lecturer was impressed by the mental stagnation within the community, and the lack of appreciation of the priceless manuscripts which are in their possession. Dr. Charles Dana afterwards proposed a vote of thanks to Sir James Purves-Stewart for his entertaining lecture; this was seconded by Dr. Bernard Sachs, and conveyed to the lecturer by Sir James Berry. The joint meetings of the Association and the Section were continued during the week, and a report of the early proceedings appears on p. 258.

WE regret to announce the death on July 26th in London, in his 83rd year, of Sir Bryan Donkin, consulting physician to the Westminster Hospital. A leading criminologist, his outspoken expressions have been of the greatest public value in many social circumstances. A fuller obituary notice will appear in our pages.

MEMBERS of the medical profession will also learn with sorrow the death, in his 66th year, of Mr. Alfred C. Taylor, of Peterborough, whose radiological work commenced with Röntgen's discovery and was carried on assiduously for over 30 years in spite of the serious consequences to his health manifested in dermatitis and the loss of fingers from both hands.

THE conferment of a knighthood upon Dr. Wilfred Thomason Grenfell, C.M.G., will give pleasure to his many friends inside and outside the medical profession. Dr. Grenfell is a Fellow of the Royal College of Surgeons of England, who holds honorary degrees of the Universities of Oxford, Harvard, and Williams. As doctor, missionary, and mariner his name will always be associated with life and progress in Labrador.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CCXXXIV.

## THE TREATMENT OF ERYTHEMA MULTIFORME AND ALLIED ERUPTIONS.

THIS large and relatively common group of toxic erythematous eruptions will for our purposes include erythema multiforme (e.g., iris or target forms), erythema nodosum or contusiforme, and purpura.

A simultaneous consideration of these clinical types is justified by what has been termed their rheumatoid characters. The lesions are always evanescent or fleeting, tending to recur, sometimes with seasonal variations, and not infrequently accompanied by fever, constitutional disturbances, and vague rheumatic pains around the joints and in fibrous planes. Scarring is never produced in uncomplicated cases. A certain similarity in the pathological histology further justifies this grouping. Exudation of serum or blood through a damaged capillary endothelium is the keynote. In all three conditions there is some evidence to support the view that a hæmolytic streptococcus may play a part in the causation. It has actually been recovered and grown in pure culture from some of the lesions, especially those of a purpuric type. In a large percentage of the cases there is a history of tonsillar trouble, and it is likely that the organisms or their toxins may enter the circulation at this point. In others, again, there is pronounced dental sepsis, which may be obvious or revealed only by X rays. The possibility of these two sources of blood infection should always receive due consideration, but it has to be admitted that eradication of such foci does not invariably lead to a cure or prevent relapses.

If we are satisfied that the surgical work has been thorough, and that the macroscopic and accessible foci have been completely eradicated, we are then faced with the more difficult and problematical search for subsidiary foci, a task which may baffle even the most experienced. In this connexion it is well to remember that the causative toxin may be medicinal or metabolic, as well as bacterial, and that cases are recorded which appear to have followed the ingestion of tinned foods; this brings the clinical picture into line with those (like urticaria) for which an anaphylactic explanation is put forward. In urticaria there is considerable experimental and clinical evidence that histamine, or a chemical substance resembling it, is the actual causative agent. By analogy there is much to be said for the theory that the introduction of certain drugs—e.g., iodine or quinine—in predisposed persons, the existence of septic and occluded foci, or the ingestion of stale foods, may lead to the formation or splitting off from tissue molecules of a definite type of albuminoid poison which specifically produces the eruptions we call erythema multiforme, erythema nodosum, or purpura. Such a hypothesis is attractive, and whether ultimately proven or not, at any rate provides a basis for treatment.

There are special therapeutic indications in each of the three members of the group.

*Erythema Multiforme.*

In the acute case the treatment should at first be symptomatic only, for it is never wise to attack even obvious foci surgically when the whole circulation is presumably flooded with the causative virus. This caution would seem especially advisable in cases with oral or pharyngeal lesions. These patients are best treated in bed, with the usual attention to diet, purgation, &c. If gastro-intestinal symptoms occur, calomel, salol, or high rectal washouts with saline or weak permanganate of potash (1 in 5000 or weaker) may be administered. If there is much oral sepsis or eruption of bullæ, with rapid formation of eroded or ulcerated areas in the mouth, only the bland and soothing antiseptics will be tolerated. These include weak solutions of glycothymolin (℥ i. to O i.), peroxide (5 vols. per cent.), and bicarbonate of soda (gr. x. ad ℥i). Pains in the joints should be treated with salicylate of soda, but do not respond so well as the true rheumatic cases. While the patient is under immediate medical supervision every effort should be made to discover the source of infection. Swabs may be taken from the tonsils or gums; a bacterial investigation of sterile samples of the urine may prove useful for the purposes of diagnosis, or for the preparation of a vaccine at a later stage.

*Local treatment* of the cutaneous manifestations is a simple matter, for the patient, as a rule, does not complain of much more than burning or slight itching. Lead and calamine lotion in equal parts usually suffices to give relief. Strong antiseptics should never be used, and lotions and powders are better than ointments.

*Vaccine treatment* is best deferred until the surgical procedures are completed. In one case, in which a virulent hæmolytic streptococcus had been recovered from the urine, the fæces, and the apical abscesses at the roots of many teeth, every injection of the autogenous vaccine was followed on the next day by a fresh eruption of vesicular erythema multiforme over the whole trunk. The phenomenon showed how sensitive some patients are to the virus, and suggests the need for caution in the matter of dosage and dose intervals. There is good reason to suppose that in the case quoted the vaccine helped to promote the recovery of the patient.

*Erythema Nodosum.*

In this disease the inflammatory process and the exudation of serum are at a deeper plane, and occur in tissues, such as the shins, in which pressure effects give rise to pain. Pain is indeed usually the symptom that most urgently requires treatment. Bed is essential, and salicylate of soda or aspirin gives considerable relief. The affected members may be wrapped in cotton-wool over a 10 per cent. ichthyol ointment, or lead compresses may be applied. While most authorities are convinced of the presence of circulating toxins in such cases, there is some doubt as to their nature. The safest position is to regard erythema nodosum as a symptom which may occur as a manifestation of various poisons, and that in its ætiology rheumatism, tuberculosis, streptococcal infections, certain acute specific fevers, and gastro-intestinal toxæmia may play a part. During the attack the same general measures are applicable as for erythema multiforme; when the attack is over there should be instituted a similar process of investigation, which must include an examination of the patient's personal and family history, especially as regards tuberculosis.

*Purpuric Eruptions.*

Purpuric eruptions may be classified broadly into primary or idiopathic, and secondary. The ætiology of the former group is entirely unknown, and its incidence increasingly rare. There is ground for the belief that in the future a bacterial or biochemical cause will be found for all cases. A blood count and a Wassermann test should precede all other investigations, for purpuric eruptions may occur in many blood diseases of both known and unknown causation. They may also occur in diabetes and advanced renal disease, and are of grave significance when associated with intermittent fever and signs of organic disease of the heart. Beyond attention to the points already laid down above, little can be suggested on general lines. The treatment must in the main be symptomatic and governed by the severity of the case. When hæmorrhage from mucous membranes, from the kidney, or from the stomach is a feature, the outlook is serious, and it has been computed that 14 per cent. of such cases proceed to a fatal termination. Three varieties of idiopathic purpura are described.

(1) *P. simplex*, usually seen in young children as small petechial spots on the legs chiefly. There may also be joint pains and slight fever. Rest in bed and a light diet is usually all that is required, and recovery is the rule in from two to three weeks.

(2) *P. rheumatica.*—In this type the joint symptoms predominate, but occasionally there is an associated eruption of bluish red macules.

(3) *P. hæmorrhagica.*—As its name implies, the hæmorrhages, which may be either cutaneous, subcutaneous, or general from any mucous surface, are the main feature of the clinical picture. Joint symptoms may also occur, and treatment by salicylates may afford some relief.

The number of recommendations available for the treatment of severe cases of purpura is in inverse ratio to the degree of their reliability. Adrenalin chloride by the mouth or by subcutaneous injection of 5 to 10 minims of a 1 in 1000 solution three to four times daily is probably the most valuable symptomatic agent we possess. In desperate cases blood transfusions from a relative in the corresponding blood group may be tried, while in those less dangerously situated the blood may be given intramuscularly in 20 c.cm. doses in the buttocks. Horse serum (20 c.cm.) at intervals of three or four days has other advocates, but if used must be given with due care to the avoidance of the most troublesome and ever-present possibility of subsequent serum disease.

Calcium salts are generally prescribed for all cases of purpura, and in the severe types with serious hæmorrhages intramuscular injections of whole blood are said to have been beneficial. In cases of a chronic relapsing type, X ray irradiation of the spleen, which is sometimes felt to be enlarged, may do good, and recovery has been reported after splenectomy.

In the secondary group of purpura every effort must be made to trace out and eradicate a septic focus, for, just as in erythema multiforme and erythema nodosum, the best results can only be expected by discovery and abolition of the cause.

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# Special Articles.

## ACUTE RHEUMATISM IN CHILDHOOD.

REPORT BY THE MINISTRY OF HEALTH.

THE bacteriology, incidence, and institutional treatment of acute rheumatic infection are the subjects chiefly considered in the latest Report [1] of the Ministry of Health. Unlike that issued in 1924,[2] this Report deals with rheumatism in children, the disease being studied in its relation to cardiac disability. In his preface Sir George Newman points out that in England and Wales during 1926 diseases of the heart caused 142 out of every 1000 deaths—cancer causing 117 and tuberculosis 82—and attributes some 40 per cent. of the cardiac mortality to rheumatism. It is only, he says, by the early, continuous, and thorough treatment of this infection that we can hope to save lives or prevent crippling, and there is perhaps no more striking example of the principle that treatment must begin as soon as possible after a disease becomes manifest.

### *Bacteriology.*

The first section of the Report is a historical survey, after which Dr. Arthur Eastwood summarises our knowledge of the bacteriology of acute rheumatism. Observers who have reported positive results have generally, he says, been in favour of some form of micrococcus, and most workers now agree that the cocci found in association with the disease do not from a species of their own but must be included within the group of streptococci. Some streptococci produce hæmolysis in a blood medium and are termed *S. hæmolyticus*. Others do not hæmolyse blood but form green colonies and are therefore known as *S. viridans*. The cocci found in acute rheumatism, though occasionally hæmolytic, are generally *S. viridans;* but organisms of this type are widely distributed, and are often found as harmless saprophytes or as the causal agent in lesions which have nothing to do with rheumatic fever. Attempts to distinguish the rheumatic organism from the others by serological reactions have not been conspicuously successful, and the strains associated with acute rheumatism do not appear amenable to grouping either into a single class or into a reasonably small number of types. It is possible that future work will bring some sort of order into the apparent chaos.

Another method of approach is experimental inoculation of animals, and from work of this kind Dr. Eastwood draws the important conclusion that the lesions produced in the rabbit by *S. viridans* isolated from cases of rheumatic fever are not clearly distinguishable from lesions produced in the rabbit by streptococci from other sources. While refusing to adjudicate between the positive and negative findings of the many workers who have tried to isolate organisms from the blood or organs of rheumatic patients, he points out that negative results may be due either to absence of *S. viridans* as an infecting agent or to its low viability when it gains access to the blood in small numbers. Further work on blood cultures is of primary importance. There are two main objections to the theory that streptococci are merely secondary invaders in acute rheumatism and that the true causal agent is a filter-passer. These are: (1) that there has been no satisfactory demonstration of an ultra-microscopic virus, and (2) that diseases thought to be due to viruses of this kind are generally highly infectious.

In conclusion, Dr. Eastwood remarks that many experienced observers think that acute rheumatism is caused by *S. viridans*, and although they have not proved their case completely they have good reason for asserting that no rival theory has made substantial headway. From the bacteriological standpoint interest appears to be mainly focused on further analysis of this group of organisms by biochemical and immunological methods, though the theory of an ultra-microscopic virus cannot be absolutely excluded.

### *Predisposing Causes.*

Part II. of the Report considers the incidence and prevention of diseases of the heart. The cardiac mortality, it is claimed, is increasing despite an apparent change in the nature of the rheumatic infection. Acute rheumatism is less acute and virulent than it was 40 or 50 years ago, but its minor manifestations appear more frequently than before. Urbanisation and industrialisation appear to be potent predisposing factors in the causation of cardiac disease, and receive full consideration in a recent report [3] of the Medical Research Council, which deals with heredity, environment, infectivity, housing, dampness of house and site, overcrowding, sore-throat, and other subjects. The Council's investigators found that the incidence of acute rheumatic infection amongst those in close contact with a patient was unduly high, suggesting that infection was transmissible by infected persons. It was observed that among the very poor and destitute rheumatism is less common than among the children of the hospital class, but Sir George Newman throws doubt on this observation, and an investigation described in the Ministry's Report suggests that the poorer the home the greater the risk. The disease is, of course, rare among the well-to-do, and in reference to its absence at Eton College for many years it is pointed out that besides great advantages in nurture a large proportion of boys entering the College (nearly 70 per cent. in a recent sample) have had their tonsils removed.

### *Nature of the Disease.*

No satisfactory definition can yet be given.

"Probably (says the Report), it is correct to say that acute rheumatism is a general systemic infection, comparable in many ways to the infection of tubercle or of syphilis, 'A chronic slowly progressive disease characterised by intervals of calm simulating complete recovery and periods of activity which entail further damage to the organism' (T. T. Mackie) that this infection usually enters the system through infected tonsils, that up to the age of puberty the brunt of the infection usually falls upon and abides in the heart, and that just before and at puberty, especially in the female child, there is a special liability of the central nervous system to infection. After puberty the brunt of infection tends gradually to fall rather less upon the heart and rather more upon the synovial membrane of the joints, although the heart is still affected in more than half even of adult patients. . . The prodromal signs of the rheumatic infection in children are often pallor, loss of weight, slight daily rise of temperature, accompanied by an increased pulse-rate, and fatigue out of all proportion to the task or play. To distinguish what is called the pre-rheumatic child from the equally indefinite pre-tubercular child is difficult. Both require the most careful medical supervision, and the so-called pre-rheumatic child is too often in reality already the rheumatic child."

The early recognition of rheumatic infection is as difficult as it is important. The chief minor manifestations, which are often the first to appear, are growing pains, recurrent tonsillitis, and subcutaneous nodules, whilst other premonitory manifestations include epistaxis, erythema multiforme, persistent headache unexplained by eyestrain, and nervous symptoms which may be signs of so-called latent chorea—e.g., nightmare, talking or doing sums during sleep, habit spasms, acquired enuresis, "exaggerated" fidgetiness, clumsiness, and deterioration of handwriting.

[1] Reports on Public Health and Medical Subjects. No. 44. 1927. H.M. Stationery Office. 1*s.* 6*d.*
[2] The same series, No. 23.

[3] Medical Research Council: Special Report No. 114. 1927. H.M. Stationery Office. 2*s.* 6*d.* (See THE LANCET, 1927, i., 552 and 562.)

*Growing Pains* may be mild and evanescent. They are usually described as most noticeable in the hamstrings behind the knee, but H. P. Newsholme found in 50 per cent. of his cases that pain was referred to the front of the thigh. Stiff neck in a child should be regarded with suspicion. Growing pains constitute the distance danger-signal of rheumatism, and may afford weeks or even months of warning. "When they are present in a child with signs suggestive of tonsillar disease it is indeed time to seek medical advice, and probably to enucleate the tonsils."

*Recurrent Tonsillitis.*—At routine examinations of elementary school-children at least 5 per cent. are found to have enlarged tonsils, whereas among children who have once shown the major signs of rheumatism the proportion is at least ten times as great. Recurrent tonsillitis is a danger-signal of acute rheumatism, and in about 10 per cent. of cases a sharp attack of tonsillitis is a prodromal symptom.

The major manifestations are, of course, arthritis, chorea, and carditis. The first occurs in 60 to 70 per cent. of all children with rheumatic infection sufficiently ill for admission to hospital. It is estimated that of the 5,000,000 children at ordinary elementary schools in England and Wales 0·7 per cent. have organic cardiac defects (0·5 per cent. requiring supervision and 0·2 per cent. requiring treatment).

### *Tonsillectomy.*

Mackie [4] found that only 57 per cent. of first recurrences developed within four years of the first attack of rheumatic fever. The apparent success of tonsillectomy or other therapeutic or preventive measures must be reconsidered in the light of this conclusion.

The report sums up as follows: "The truth probably is that tonsillectomy (if practised early enough and if completely performed) is of great value not only as a prophylactic against a first attack of acute rheumatism, but also that it is often an effective preventive of recurrence, and that it also has a highly beneficial effect in preventing rheumatic carditis from resulting in permanent damage."

The fact that tonsillectomy often does not prevent a first attack of rheumatism is attributed, partly at least, to the infection having reached the cervical glands or some other focus before operation. "Even if this be so, however, the removal of infected tonsils is almost certain to prove beneficial, and examples of any harm following the operation are exceedingly rare."

In his preface Sir George Newman remarks that in its indications of the value of tonsillectomy the report may perhaps go further than the evidence warrants.

### *Care of Rheumatic Children.*

Over 2000 children receive in-patient treatment in London every year, of whom more than half are treated at Poor-law infirmaries. The second report [5] of the British Medical Association's sub-committee stated:—

> "The voluntary hospitals in general, and the children's hospitals in particular, make every effort to provide in-patient treatment for patients with active rheumatic symptoms, and their needs are fairly well met. Where enough accommodation is wanting it is usually a matter of either particularly heavy incidence or a general shortage of hospital beds for the district."

Mrs. Forest Smith, in a careful survey of the treatment given to the 508 rheumatic children below 12 years of age brought to St. Thomas's Hospital during a year, finds that 77·2 per cent. were treated as out-patients at home. Of these 508 children, 21·9 per cent. already had cardiac damage, and a further 21·3 per cent. had threatened cardiac involvement. She shows clearly the disadvantages of home treatment in the hospital classes, and in view of her data Sir George Newman regards the B.M.A. subcommittee's statement as too favourable. "For every child who is fortunate enough to be admitted as an in-patient there are," he says, "two, three, or even four children who need in-patient treatment, and who do not get it." These children cannot get the necessary rest and control in a crowded, busy, restless home.

The report concludes with a survey of treatment from the public health standpoint. The following principles are laid down:—

> "Complete" rest should be continued for at least three weeks after (1) the pulse-rate and temperature have returned to normal, (2) anæmia has disappeared, and (3) the heart signs are unchanged. Under favourable conditions "graduated" rest may then be substituted. Country air, perfect environment, and constant medical and nursing supervision are required, together with special educational arrangements. Removal of focal sepsis is regarded as essential.

Detailed consideration is given to the care of rheumatic children at (*a*) special homes, (*b*) ordinary convalescent homes, (*c*) day open-air schools, (*d*) residential open-air schools, and (*e*) physically defective schools, and important suggestions are made as to the coördination of measures for prevention and treatment.

With the exception of the preface, and sections by Dr. Eastwood, Mrs. M. Forest Smith, and Dr. J. E. A. Underwood, the report is the work of Dr. J. Alison Glover, of the Ministry of Health.

The authors are to be congratulated on their presentation of facts and opinions.

[4] Amer. Jour. of Med. Sci., August, 1926, p. 220.
[5] Brit. Med. Jour. (Supplement), April 16th, 1927.

## MEDICINE AND THE LAW.

### *No Prescriptive Right to Pollute Rivers.*

A CORRESPONDENT has drawn attention to a phrase in the article (THE LANCET, April 16th, p. 830) on the Pollution of Rivers, in which the words were used "plea of a prescriptive right to pollute." As he rightly points out, the defence of prescriptive right is greatly restricted, if not entirely abolished, by the decision of Mr. Justice Eve in 1922 in Hulley *v.* Silversprings Bleaching and Dyeing Co. The pollution of a river is a statutory offence under Section 4 of the Act of 1876, and no one can acquire a prescriptive right to do what a statute forbids. The effect of this case has already been explained in these columns (1926, ii., 715). As has often been remarked, the decision has hardly been given its proper effect. In these times, which are so critical for industry, magistrates and judges are, perhaps naturally, anxious not to hamper local commercial activities or to throw men out of employment. There is an atmosphere of toleration because public opinion has not been focused upon the evils of pollution. Prosecutions and actions for injunction thus lose some of their terror for those who are responsible for pollution. Thus, in turn, others are discouraged who else might institute proceedings. Meanwhile, if a recent speech of the Earl of Balfour in the House of Lords is to be taken as the official view, it would seem that the hopes of cleaner rivers are remote.

It will be worth while to elaborate the ruling given in Hulley's case (1922, 2 Ch. 268). Mr. Hulley owned Pool Bank Mill on a stream called Timbersbrook in Cheshire. He spent £5000 on altering the mill and fitting up machinery for his trade as a cotton doubler, and then found he could not begin business because the defendant company was interrupting his riparian right to a full flow of clean water. The company, after pleading the customary denials so as to put him to the proof of the facts, contended that, if there was any pollution, there was a long-established usage justifying it, either from time immemorial, or under

a presumed lost grant or under a 20-year period of prescription. The law has always been kind to long-established usage. If the courts find that there has been such usage over a long period they are lenient in exacting proof of it. The law allows evidence of 20 years' usage to be prima facie conclusive, and the courts are endowed (as a judge has said) with great powers of imagination for the purpose of supporting ancient use—for example, they favour the fiction of a lost grant. But in Hulley's case Mr. Justice Eve was clear that the discharge of pollution into the Timbersbrook was an offence under the 1876 Act, that this offence had been continued right down to the trial of the action, and that a lost grant cannot be presumed if the grant would have been in contravention of a statute. "As title by prescription is founded upon the presumption of a grant, if no grant could lawfully have been made no presumption of the kind could arise." The claim to pollute was held to have failed, and the company had to pay the costs. This was not new law. The learned judge cited a case in which he had been engaged when still at the Bar (Neaverson *v.* Peterborough Rural Council, 1902, 1 Ch. 557) on a different subject, but laying down the same principle. There was a question of pasturage on roadsides in the fen district. An Act of Parliament limited the pasturing to sheep, doubtless to avoid the breaking-down of drainage banks by the trampling of horses and heavy cattle. For 50 years the highway surveyor had let the roadside herbage for the pasturing of horses and cattle as well as sheep. Cozens-Hardy J. was satisfied with this long-established usage as setting up a presumption of a lost grant. The Court of Appeal overruled him. Unless such an imaginary grant had a legal origin the court could not imagine its existence. The grant would have been contrary to the Act of Parliament and thus it was unimaginable. What was wanted to support the ancient usage was not a lost grant, but a lost Act of Parliament, and Acts of Parliament do not lose themselves. There are similar observations by Lord Macnaghten in a House of Lords case (Butterworth *v.* West Riding of Yorkshire Rivers Board, 1909, A.C. at p. 54). But indeed there is no doubt about the law. What is at fault is the half-hearted application of the existing powers of individuals and local authorities to prevent pollution. Prosecutions will have no deterrent effect till courts become aware that public opinion is aroused and insists upon the enforcement of the law.

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DONATIONS AND BEQUESTS.—Mr. Thomas Alfred Harrop, of Timperley, Cheshire, and of Whitworth-street, Manchester, left £500 each to St. Mary's Hospital, Whitworth-street West, Manchester, the Manchester Royal Children's Hospital, Pendlebury, the Manchester Babies' Hospital, Levenshulme, and £250 to the Ancoats Hospital.—Mr. Abraham Ormerod, of Walsden, Todmorden, Yorks, after some annuities and legacies, left all his other property—about £30,000—for such charitable purposes or institutions or objects in England as his trustees in their uncontrolled discretion may select, but he expressed the wish (but without creating any trust in the matter) that they will have regard to such institutions and objects as will tend to alleviate pain and suffering, and in their opinion be of direct benefit to the people of Todmorden.—Mrs. Joseph Cunningham and her two sons and daughter have united in a gift to Noble's Isle of Man Hospital of an electro-medical pavilion with all modern equipment, estimated to cost between £5000 and £6000.—The record gift of £11,857 in subscriptions was announced at the festival dinner of the Royal Hospital and Home for Incurables, Putney, which was held on June 30th.—The late Mr. Solomon Kaufman, of Hartlepool Durham, left, among other bequests, £500 each to the Hartlepools Hospital and Dispensary and the Jews' Hospital and Orphan Asylum, West Norwood, S.E.—A cheque for £5000, to be used in extending accommodation, has been given to the Adamson Cottage Hospital, Cupar, by Mr. J. B. Crichton, of Luthrie Bank, North Fife.—The trustees of the late Mr. William Shepherd have made a second payment of £1000 to the General Lying-in Hospital, Lambeth, for the purpose of naming another bed to be called "The William Shepherd Bed."—Mr. Bernard Baron, of Hove, has given £5000 for the benefit of the crippled children of Chailey Heritage Schools, Sussex.

# IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### *Opposition to Medical Appointments.*

THE transfer of the selection of candidates for local offices from the local authorities to the local appointments commissioners has not worked without some friction. The machinery of making an appointment is as follows: When a vacancy occurs in the employment of a local authority, the latter, unless it chooses to fill the vacancy by transfer of an officer already in the public service, notifies the Minister of the existence of the vacancy. The Minister invites the local appointments commissioners to nominate a suitable candidate, and the local authority is bound to appoint the candidate so nominated. In their selection of a candidate in the case of medical vacancies the appointments commissioners always proceed on the advice of a selection board. This procedure was followed some weeks ago in the case of a dispensary vacancy in County Roscommon, and the name of a woman doctor was submitted to the county board of health for appointment. Protest was made by the board that the district was unsuitable for a woman doctor, and the Minister was asked to have another name submitted. He has remained obdurate, and he finally threatened to take the necessary legal proceedings to enforce the appointment of the lady nominated. In response to this the entire county board of health has resigned. It is of interest to recall that the legislation on which the present method of appointment is based was introduced in order to get away from the bribery and corruption which in some areas at least surrounded appointments made by the local authorities. This corruption was proved in regard to a member of the Roscommon board of health, who was sent to gaol for some months for soliciting a bribe in connexion with an election.

It is not, however, only in Roscommon that friction has arisen out of the new method of appointment. The Carlow County Council has refused to appoint the gentleman nominated by the appointments commissioners for the post of county medical officer of health, while an appointment in County Monaghan was only made after several months of controversy.

### *The Dentists Bill.*

The Dentists Bill, reintroduced to the Dail three weeks ago, has been postponed and will not receive further consideration this session. This is perhaps just as well, as some points of importance are raised in the Bill, apparently without due consideration. It is understood that the Bill is the result of deliberations between representatives of the Government and of the dental profession, in which representatives of the medical profession had no part. The Bill proposes to prohibit the practice of dentistry or dental surgery by all who are not registered dentists. This prohibition makes an exception of medical practitioners on the register at the date of the passing of the Act, but only makes a partial exception of future medical practitioners, who may give dental treatment, advice, or attendance in "urgent dental cases." This interference with the rights and privileges possessed by the medical profession has roused opposition, and representations thereon have been made to the Government by the Council of the Royal College of Surgeons in Ireland. It is pointed out also that a curtailment of the practice of medicine and surgery, such as the Bill proposes, may give rise to some uneasiness as to the agreement recently arrived at between the British and Irish Governments on the subject of the Medical Register. It is hoped that the time given for further consideration may help to dissolve the difficulties raised by the Bill. One cannot but think that these difficulties would have been avoided altogether had the Government had the advantage of an earlier consultation with representatives of the medical profession.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Ponudos or Pseudo-leprosy.*

WHILE on a visit from Guatemala, where he is stationed, Dr. Roblès has described to the Academy of Medicine a disease frequent enough in Guatemala, but which has never yet been classified. The lesions are chronic, resembling elephantiasis of the feet, the onset being insidious with successive remission and advance. The first sign is an erythematous patch accompanied by transient enlargement of the inguinal glands and high fever, followed by chronic œdema with thickening and pitting of the toe-nails and dorsal surface of the feet. The lesions only affect the soft parts, the skiagram showing the bones to remain unaffected. Dr. Roblès proposes the name of pseudo-leprosy for this affection, inasmuch as it has been frequently confused with true leprosy, although readily distinguished by the absence of lepra bacilli and of any alteration of sensation. On the other hand, it is distinguished from other kinds of elephantiasis by the absence from the blood and tissues of any recognisable parasites.

*The Medico-legal Aspect of General Paralysis.*

The favourable results of treatment by arsenical and bismuth salts, by shock therapy, and especially by malarial infection, in cases suspected of meningo-encephalitis or even at an early stage of general paresis, have materially altered the outlook for the patient. Figures show that the proportion of cases in which long remission is obtained varies from 30 to 40 per cent. Prof. Henri Claude, who has dealt with 143 cases at the clinic for mental diseases, gives a percentage of 40·5 of complete remission as compared with 10 to 12 per cent. of partial remission occurring spontaneously. This alteration in outlook has necessitated the revision of the legal measures taken for the protection of these patients. It is, of course, necessary to take account of the importance of their responsibilities and of the nature of their work, and in any case it is desirable in the patient's own interest for him to avoid overwork and remain an indefinite time under medical supervision. Prof. Claude counsels reserve even in the cases of most favourable aspect, when the question of civil capacity and the possibility of relapse has to be decided. Yet he admits that in a number of patients who were allowed to return to their occupation, progress has been continuous and satisfactory. It is therefore possible that medico-legal decisions in general paralysis may in the future not be couched in the stringent form of the past. The appointment of a provisional administrator may avoid the necessity of making any final decision and allow of watching the evolution of the disease when submitted to energetic treatment. On the other hand, in view of the unbalanced mentality of these patients, it would obviously not be judicious to allow them too rapidly to recover control of their affairs. Cases of complete restoration are still the exception, but in view of the increasing number of recoveries, Prof. Claude is right in insisting on caution in taking medico-legal decisions as to civil capacity.

*Leprosy in Paris.*

The Paris Municipal Council is considering measures for the control of leprosy, its action being urged because there is a tendency on the part of lepers from various countries to seek the treatment afforded by the Hôpital St. Louis and other Paris hospitals. The new measures contemplate isolation of the cases in a special ward at the Hôpital St. Louis, obligatory declaration, domiciliary control by therapeutic and bacteriological methods, exclusion of lepers from occupations such as hair-dressing, laundries, and the cooking and sale of foods, and the creation of leprosariums and the elaboration of arrangements with foreign countries with a view to restriction of the immigration of lepers into France.

## VIENNA.

(FROM OUR OWN CORRESPONDENT).

*Deaths in the Profession.*

BY the death a few days ago of Prof. Rudolf Kaufmann, the cardiologist, Vienna loses an investigator of great ability. Whilst still a young man he commanded the attention of Nothnagel and Maunaberg by his work on the pathology of the intestinal canal, and when, at the beginning of this century, modern methods of research on the heart were made known, he threw himself with zeal and ardour into the new study; a long series of papers on the size of the heart, the cardiac muscle and its rhythm, stenocardia, pulmonary œdema, parasystole, allorhythmia, and the circulation in the coronary vessels show to what wide understanding he attained. Together with Prof. H. Mayer he experimented on the pharmacological side of his subject, and during the late war he organised a huge "heart hospital," in which the effects of shock, over-exertion, infectious disease, and neurasthenia on the normal and diseased heart were studied. Many soldiers regained their cardiac health in this hospital, and after the war Kaufmann succeeded in perpetuating its service for the benefit of the general public. His death at the age of 56 came quite unexpectedly.

The second severe loss to the medical faculty is caused by the death of Prof. Luithlen, the dermatologist, in his fifty-eighth year. He, too, had been closely associated with the work of Prof. Mayer and had investigated the pharmacology of the skin, publishing numerous papers, also, on pemphigus, scleroderma, and elephantiasis. At one time he was assistant to the famous Kaposi.

*Lactation.*

At the last meeting of the Gynæcological Society of Vienna Prof. Kraul read a paper in which he dealt with the physiology of lactation. This condition, he said, brings about a regular alteration of the blood picture; there is leucocytosis, eosinophilia, and lymphocytosis. The vasomotor centres react in a different way in the lactating woman to adrenalin and caffeine, and the lactating mother is less prone to glycosuria than the non-lactating. There is also increased tone in the vagus. In 75 per cent. of all lactating women the typical amenorrhœa of lactation is found. This is caused not by an absence of ovarian function, but by cystic degeneration and over-rapid maturation of the follicles; at the same time there is hypofunction of the hypophysis. The vegetative nervous system acts (so to say) as an intermediary between metabolism and ovary on the one hand and the rest of the glands of internal secretion on the other. Most investigators are not of this opinion, believing that the mammary glands produce their secretion because they are not stopped by the ovary. In abnormally protracted lactation loss of ovarian function is certainly found; but as there are wet-nurses who are regular in their monthly periods although they are producing large quantities of milk, Prof. Kraul does not accept the theory that the ovary controls the breast. It is noticeable that the appearance and condition of women often greatly improves after childbirth, which suggests that lactation has a considerable influence upon the general health and disposition.

## BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

*Seaside Sanatorium for Surgical Tuberculosis.*

THE Ministry of Public Welfare has long been considering the establishment of a seaside sanatorium for the cure of surgical tuberculosis in children. The Government, however, has been unable to set aside the necessary funds, although convinced that such an

institution is needed, and the Society of Rumanian Charitable Women therefore proposes to raise the money required. With the same object a number of addresses have been given at the Bucharest Medical Society and elsewhere, at which it was pointed out that successful sanatoriums have been set up along the sea-coast in many countries and that—contrary to experience with adults—salt air and sea-bathing seem to be the best possible treatment for scrofulous conditions in children. Their usefulness in surgical tuberculosis is less certain, but, as an English surgeon said not long ago, it is scarcely justifiable to treat this condition in the hospitals of large cities. In orthopædic hospitals the necessity for fresh air and sunshine is well understood, and the children sent to country homes during the summer come back wonderfully improved.

*Fees of Medical Practitioners.*

The general increase in the cost of food and clothing and the rise in rent and especially in taxes has involved the raising of medical fees in Rumania, despite the appreciation of currency in the last few months. As, however, there is a Ministerial decree which establishes a minimal scale of fees in the different towns and in general throughout the country, most people pay only this minimum. When actions are brought for recovery of fees the civil court always orders the defendant to pay the fees laid down by regulation. The fees of general practitioners, however, are not determined on this basis, and most towns and local associations have announced a rise of 30 per cent. in their scale of payment, this change being seldom opposed. In towns of less than 30,000 inhabitants, taking families of moderate income with four to five members, the annual fee of the medical adviser is 4000 lei (about £5); in Bucharest the fee is from 6000 to 12,000 lei. These are paid in half-yearly instalments; extra payment sometimes has to be made for night calls and consultations, for visits to sanatoriums and hospitals, and for obstetric and surgical operations. In view of the fact that the average fee for attendance at the patient's home amounts to 100 to 150 lei (about 3*s.*) in the larger towns and 100 lei even in the smaller towns, it may be said that the present financial position of the medical profession in Rumania is satisfactory.

*Diphtheria in Serbia.*

In a recent report of the Chief Sanitary Board of Jugoslavia it is stated that during the decennium 1915–25 8736 cases of diphtheria were notified in the old kingdom of Serbia, with a mortality of 2117, or about 25 per cent. Of the cases notified antitoxin was given in 5234, and in these the mortality was about 11 per cent.; in the cases not treated with antitoxin, on the other hand, the mortality was no less than 46 per cent. Apart from curative treatment 14,276 persons were given prophylactic injections of antitoxin. They were all members of households invaded by diphtheria, and 54 of them were afterwards attacked by the disease, 19 of the cases proving fatal. In the whole series of people treated curatively and prophylactically, abnormal after-effects were noted in only 24 patients. These effects comprised serum rashes (8), erythema (4), roseola (2), local inflammation at the site of the injection (3) and abscess (4), painful elbow-joint (1), pain in the leg and swelling of the foot (1), and suppuration in the middle ear (1).

## UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

*Psychiatry and the Law.*

THE American Psychiatric Association held its annual meeting last month at Cincinnati, in company with four other national societies interested in mental hygiene and abnormal psychology, and the combined meetings drew several hundred physicians from all parts of the country. The most important business transacted was the outlining of a new legal code. This lays down the need for a classification of mental disorders taking into consideration "behaviour pathology not now definitely defined or classified from a psychiatric standpoint." There are also to be laid down "official standard qualifications" of expert witnesses in psychiatry and for psychologists and social workers attached to psychiatric clinics. Various proposals by the American Institute for Criminal Law and Criminology were approved, including a recommendation that the disposition and punishment of all misdemeanants and felons be based upon a study of the individual offender by qualified and impartial experts coöperating with the courts. The indeterminate sentence was favoured, and it was agreed that no parole or discharge should be granted without full psychiatric examination. The last proposal, if adopted, will almost of necessity require the appointment of resident psychiatrists in the larger penal institutions. It was recommended that courses in criminology be given both in law schools and in medical schools by persons trained in criminal law as well as in criminal psychiatry.

*Infant Mortality.*

The U.S. Children's Bureau has just completed an analysis of infant deaths in eight American cities, the study covering a series of 23,000 live births. Advocates of birth control will note with interest that mortality is highest when births come in quick succession and lowest among babies born at intervals of four years or more. The possibility of spurious correlation here must not be forgotten. It may be also that the somewhat higher mortality in children of mothers under 20 years of age is due to their less fortunate circumstances rather than to their youth. Babies of mothers who died within a year of confinement had a four times heavier mortality than those whose mothers survived the first year. Mortality was lowest for infants born in August and highest for those born in June. The death-rate of premature babies was more than six times as high as that of babies born at term. The mortality drops month by month for the first year of life; it was 44·8 per 1000 in the first month, 9·3 in the second, and 4·5 in the twelfth.

*Prevention of Blindness.*

A successful year is reported by the National Committee for the Prevention of Blindness. Preschool eye clinics have been established, and at the end of the year three demonstration centres were at work in which children from 3 to 6 years of age were being examined. The sight-saving classes in the United States have increased from two in 1913 to 265 in 1926. The subjects considered by the classes include a survey of the schools for myopic persons in Great Britain. The committee has given attention to methods of illumination in industry and the popularisation of modern devices with employees and managers. It is satisfactory to note that the admissions to schools for the blind due to ophthalmia neonatorum are only half of what they were 20 years ago.

THE MERCHANT TAYLORS AND "BART.'S."—The Merchant Taylors' Company have agreed to contribute £7000 to the reconstruction fund of St. Bartholomew's Hospital, paying £1000 per annum for the next seven years. There is a long connexion between the hospital and the company.

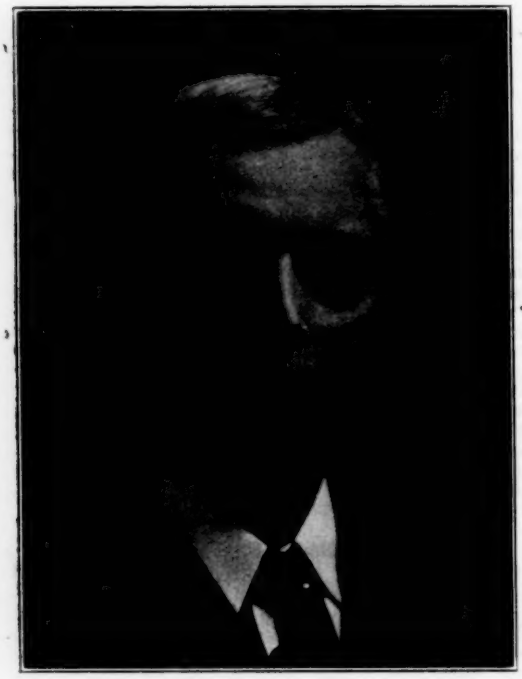
WEST HERTS HOSPITAL.—The new Marnham maternity ward at this hospital has been opened by the Marchioness of Salisbury. The erection of the ward was the chief part of the scheme of improvements and additions for which the £15,000 centenary appeal was made. Dr. Hogarth, for the Ministry of Health, which has contributed some financial assistance, said that an effort was being made to reduce maternal mortality, and that in addition to the new ward there were beds for cases of puerperal fever. The Ministry was encouraging the provision of institutional treatment for this disease in rural areas.

# Obituary.

## THE LATE DR. CHARLES CREIGHTON.

LAST week we announced the death of Dr. Charles Creighton. We now publish the following appreciation from the pen of Prof. William Bulloch:—

"Charles Creighton, M.D., died on July 18th, 1927, in the village of Upper Boddington, Northants, and was buried there on July 20th. This will probably convey little to many readers of THE LANCET who never heard of him, and it will be a surprise to others who have heard of him, that he was still alive in 1927, as he had disappeared from the stage years ago. By the death of Charles Creighton England has, however, lost her most learned medical scholar of the nineteenth century, although it cannot be forgotten that some of his opinions were the subject of such criticism that he ceased to be felt as a power in the medical world.



CHARLES CREIGHTON.

*[Photograph by Elliott and Fry, Ltd.*

"Creighton was born in Peterhead on Nov. 21st, 1847, the son of Alexander Creighton, a sawmiller and timber merchant of that town. After education at the Gymnasium in old Aberdeen, and having taken a high place in the strenuous examination known locally as the 'bursary competition,' he passed through the arts curriculum of Aberdeen University and graduated M.A. in 1867. He studied medicine in Aberdeen and Edinburgh and graduated M.B.Aberd. in 1871 and M.D. in 1878. He then set out on his *Wanderjahre* and spent a long time in Berlin in Virchow's Institute and in Vienna, where he attached himself particularly to Skoda and Rokitanski. Returning to this country he became medical registrar at Charing Cross Hospital and surgical registrar at St. Thomas's Hospital, and then began to occupy himself with anatomical problems and cancer research under Burdon-Sanderson at the newly opened Brown Institution in the Wandsworth-road. In 1877 he was appointed demonstrator of anatomy at Cambridge under Sir George M. Humphry, and he remained there till 1881, when he returned to London. Here he stayed for 37 years working assiduously and alone in the British Museum and other libraries. It was in the British Museum during the 'eighties, that he amassed the enormous collection of material which he employed to such good purpose in his invaluable 'History of Epidemics in Great Britain.' For a short time he had attempted to practise, first in Savile-row and then in New Cavendish-street, but he made nothing of it. He was by nature totally unfitted for this branch of medical activity. During more than 30 years he resided in chambers in Great Ormond-street, known to only a few and literally despised and rejected. At the end of the war his slender funds enabled him to purchase a small tumble-down cottage in the old-world village of Upper Boddington, and here, all by himself, he spent the last eight years of his life, like the philosopher that he was, and without enmity towards a world that had treated him harshly.

"I first met Charles Creighton at a concert given by the John Murray Minstrels about 30 years ago, and until he left London was a close friend of his. I also visited him in his sylvan retreat in Northampton. I will go further and state my belief that I was his only intimate friend for years before he died, for he was a most lonely forsaken man. To the end he was a scholar and philosopher and the most learned man I ever knew. He spoke and read nearly all the European languages and had an extraordinary knowledge not only of medicine but of the classics and the Bible. His knowledge of English literature and history was also profound. Although he frequently spoke as if he wished to be considered and remembered as a pathologist, it is by his 'History of Epidemics in Great Britain' that he earned a permanent place beside the great masters of medical history like Daremberg, Haeser, Freind, and Hirsch. In my judgment Creighton's 'History of Epidemics' is the greatest work of medical learning published in the nineteenth century by an Englishman. It covers the period from 664 A.D. to about 1890, and is written with such philosophical insight and with such literary brilliance and knowledge as to re-create for us the disastrous epidemics of centuries ago. If many cannot always agree with all his opinions and interpretations his data have never been in question. They have been examined over and over again and have been found so accurate that a citation from 'Creighton' invariably passes as an authoritative canon. I have read, re-read, studied, and analysed Creighton's wonderful book, and have never discovered an error on a question of fact, when I have examined the original sources. He had thoroughly sifted a vast mass of historical material, and relatively little—and that unimportant—has been added to his labours by subsequent workers. The volumes as they appeared were hailed as landmarks, and, although admirably got up, never sold well. In the course of a few years large numbers of 'remainders' were unloaded on the market and were sold on bookstalls in the London streets at the cost of a few shillings. It is now scarce. Creighton's monetary reward for his labours was negligible.

"In addition to his 'History' Charles Creighton conferred a lasting boon on English Medicine by his accurate translation for the New Sydenham Society of Hirsch's 'Handbuch der Historisch-geographischen Pathologie.' He accomplished the herculean task of translating this great work without any aid whatsoever. He once told me it cost him 12 hours a day for a period of three years! Had it not been for Creighton Hirsch's indispensable work would have remained a *terra incognita* to the mass of English workers. In addition Creighton wrote a number of books on anatomical and pathological subjects. Among these may be named 'Contributions to the Physiology and Pathology of the Breast and its Lymphatic Glands,' 1878; 'Bovine Tuberculosis in Man,' 1881; 'Illus-

trations of the Unconscious Memory of Disease,' 1886 [1885]; Contributions to the Physiology and Pathology of the Breast., 1886; 'The Natural History of Cow-pox and Vaccinal Syphilis,' 1887; 'Jenner and Vaccination, a Strange Chapter in Medical History,' 1889; 'Microscopic Researches on the Formative Property of Glycogen' (two parts), 1896–99; 'Cancers and Other Tumours of the Breast,' 1902; 'Contributions to the Physiological Theory of Tuberculosis,' 1908; 'Some Conclusions on Cancer,' 1920; 'Shakespeare's Story of His Life,' 1905. 'Shakespearean Allegories,' 1912. This last work was in progress when Creighton died.

"What can be said of these books, many of which were published through the generosity of an early friend of Creighton? Under the influence of current teaching they seemed obscure and his standpoint difficult to fathom. At the back of his head there was some idea—to most of us a nebulous one—that diseases like tuberculosis or cancer were due to some dyscrasia in the workings of the body. To most of his few readers his books meant nothing, and they fell dead at their birth, to Creighton's manifest chagrin. I am sure he longed for the day when the eyes of the medical world would be opened to see things as he envisaged them. I saw the inception, progress, and end of some of these books and argued with him on his views, and sometimes showed him things, under the microscope, which he said didn't exist; but he could not be convinced.

"He was an extraordinary man, and 'brither Scot' though he was, I cannot say I completely understood him. He seemed to have some mental twist which prevented him seeing things as other people saw them. That he implicitly believed all that he wrote I have no doubt, and he was fearless of the consequences and honest to the point of injuring himself and his prospects. He exhibited a complete indifference to the most hostile criticism and bore no grudge. He was contented and cheerful and an admirable companion. He seemed possessed of some cacodæmon, which was entirely inimical to worldly success, for which Creighton, however, cared not a jot. Throughout life he was a poor, lonely bachelor, leading a most frugal and physiological life and solely concerned in digging the claim which he had pegged out by himself and for himself. He simply could not acclimatise himself to modern theories of disease. He belonged medically to another age; he lived in a world of miasms and effluvia rather than particulate contagion in the form of bacteria. He was of the dyscrasic school of Rokitansky in pathology. But he was in no sense of the word antiquated in his learning. His knowledge was of the most modern kind and of the widest compass. Although he was familiar with all the methods of section-cutting and staining he pinned his faith on sections cut with a razor from tissue, embedded in a 'penny dip,' and stained with ink.

"The real tragedy of Creighton's life was connected with his views on cow-pox and vaccination. For many years he had been the intimate friend of Robertson Smith, the theologian and Arabic scholar, who was editor of the ninth edition of the 'Encyclopædia Britannica.' Robertson Smith got Creighton to write for the Encyclopædia the articles on malaria, medicine, Morgagni, pathology, pellagra, and vaccination. The last-named article, published in 1888, literally sealed Creighton's fate. Based on an extended study of the original data, he came to the conclusion that Jenner's work was incorrect, and that cow-pox was not as Jenner stated 'variolæ vaccinæ.' In Creighton's view cow-pox had nothing to do with variola and was not a protective against variola. He even went further and maintained that what had been described as vaccinal syphilis was not venereal pox at all, but part and parcel of the cow-pox infection in the human being. Before the publication of the Encyclopædia article he had given evidence in a book published in 1887 that he held this view. He was at once hailed by the anti-vaccinators as a valuable recruit to their ranks and by the medical profession as a renegade to be treated with disdain and obloquy. One critic said that 'Nothing in all the history of pathology can be more grotesque, more absurd than his contention that infantile syphilis is largely due to the vaccine virus.' In a reply Creighton wrote: 'I have felt constrained to my great regret to differ from what I know well to be the solid opinion of the profession on the matter of vaccination. Anyone who takes sides with a minority or a small minority has only himself to blame. It is, of course, easier, more pleasant, and more profitable to be in the full stream of professional accord. Recusancy has its own disadvantages.' The issue between Creighton and general professional opinion on vaccination was not thrashed out there and then as it ought to have been. It was deemed more expedient to drop Creighton into oblivion, and if he was ever referred to at all it was only as 'Creighton the Anti-vaccinator.' All his other work was forgotten in the debacle, and he was a doomed man. He came to the front for a short time a decade later with some views on plague, which he had been enabled to study in India through some fund placed at his disposal. He could not be brought to believe that *Bacillus pestis* played any important part in the disease, which he regarded as merely an abstract something inherent in the soil. In his journey to the Punjab it was a peculiar pleasure for him to have stood by the Hydaspes where Alexander defeated Porus. He had no doubt that he had discovered the long-disputed site of the battle.

"In his later years, when he considered that his medical mission was done, he devoted himself to literary studies on Shakespeare and published 'Shakespeare's Story of His Life' and allegories on *Othello* and *Lear*. He also had written a large work on *Macbeth*, which he showed me in manuscript. Contrary to what might have been anticipated, he scorned the Baconian theory. His books on Shakespeare were ignored by the world, and if looked at were regarded either as incoherent or erroneous. What their significance, if any, was in Shakespearean literature I do not know. They were quite beyond my capacity. Creighton himself considered they were important.

"From all I have written it is plain that Charles Creighton could not be judged by ordinary standards. He was like a lonely rock in the great flowing tide of human progress. He was a self-contained personality, a thinker, a reader, and throughout life a diligent student. He adhered to his views with the greatest Scottish tenacity. He simply could not alter, and although he suffered grievously I never, in the long years of my acquaintance with him, heard from him a single complaint. He demanded little out of life and got less. It is pleasing to think that the anxiety of his declining years was relieved by a civil pension which he received, without any influence, from Lord Oxford and Asquith, who recognised in Creighton all the elements of a great scholar.

"In person Creighton was a tall, handsome, well-preserved man—the photograph shows him at about 60 years of age. He was throughout life fond of music and was a great walker. It is a pleasure to me to try to perpetuate the memory of a learned philospher who although by nature the very antithesis of myself, was a good friend. In the opinion of many he was harshly treated by the world for holding views that did not conform to standard. Perhaps this very world has become more tolerant than it was in Creighton's time, because even in his own subject there are epidemiologists who express with impunity to-day views as heterodox as those for which Creighton was pilloried and ostracised 40 years ago." W. B.

THE LATE DR. T. R. WIGLESWORTH.—Dr. Thomas Ridler Wiglesworth, who died at his home at Minster, Sheppey, on July 4th, was 61 years of age, and came of a Gloucestershire family. Educated at Bristol, he qualified as M.R.C.S. Eng. in 1892, and soon afterwards went abroad as medical officer to a gold mine in Nicaragua. In 1906 he settled in Sheppey as partner to Dr. Julius Cæsar, who died some months ago. For the last 20 years of his life he was medical officer to the Sheppey Rural District, besides being Admiralty surgeon for the Isle of Sheppey. Dr. Wiglesworth leaves a son.

# Public Health Services.

## TUBERCULOSIS SANATORIUMS.

### CLASSIFICATION AND TREATMENT.

A SANATORIUM report should serve two purposes. In the first place it should provide the governing body of an institution with an account of the work done during the period under review, pointing out deficiencies and indicating the directions in which improvements should be made. In the second place it should supply information likely to be of service to other workers in the same field. Every sanatorium should be a centre of research. For while the main principles of sanatorium treatment are common to all such institutions and the benefits to be expected from a period of rest, fresh air, nourishing food, and graduated exercise are well known, we have still very much to learn concerning the results of various surgical procedures, of vaccine therapy and of drug treatment, and we have everything yet to learn of the possibility of discovering a specific antidote to tuberculosis. The difficulties of assessing the value of any particular form of treatment in a condition so sensitive to the effects of suggestion as that induced by tuberculosis are notorious. If every sanatorium (and we might add, every tuberculosis dispensary) was regarded as a research centre, if careful records were kept of every method of treatment adopted, and the results of such treatment were clearly set down, the present interminable and fruitless arguments concerning the value of certain supposed specifics would be set at rest, while much less time and money would be wasted in therapeutic procedures demonstrably ineffective.

A quotation from Sir Berkeley Moynihan is set at the beginning of the attractive report of the *Dumfries and Galloway Sanatorium* for the period included between the opening of the institution in 1924 and the end of last year. Speaking of cancer, he states that "the certainty of diagnosis is often the certainty of death. If we wait till we know, we wait till we cannot cure." The quotation is provocative. In a case of suspected malignant disease a doubtful diagnosis can be confirmed or dispelled by an exploratory operation. But the physician anxious to determine the correctness of a tentative diagnosis of pulmonary tuberculosis has no corresponding method by which he can at once set his doubts at rest. If he waits till he knows, it is by no means unlikely that the certainty of diagnosis will prove to be the certainty of death. But if he acts before he knows he may inflict the stigma that attaches to "the consumptive" on an innocent person, and condemn a patient who is in no danger of developing tuberculosis to a long period of sanatorium treatment.

The question of classification in pulmonary tuberculosis, involving as it does the question of diagnosis, is one of first importance, when a report on the results of its treatment is to be considered. No certain conclusions can be drawn as to the benefit of sanatorium treatment in general or of any special form of treatment adopted from a consideration of the so-called "T.B. minus" group. The Dumfries report includes a classification of patients suffering from pulmonary tuberculosis based on that recommended by the Ministry of Health. It is noteworthy that out of a total of 249 patients no less than 48 per cent. were classed as "T.B. minus" on admission. Thus, in nearly half of the total number of patients bacteriological proof of tuberculous infection was lacking on admission. The proportion of "T.B. minus" cases among the discharged was apparently about the same. It is to be noted further that a third of these cases were children, in whom a positive diagnosis of pulmonary tuberculosis is seldom possible. It is obviously better that statistics of children should be dealt with separately from those relating to adults. An extract from the histories of some of the patients is, however, supplied, and it is thus possible to form some estimate of the grounds upon which diagnosis was based. An extension of this system is desirable. It would be of the utmost advantage if sanatorium reports were always to include an analysis of the "T.B. minus" group, indicating those cases giving a history of hæmoptysis, pleurisy, and close contact with sources of infection, as well as those in which symptoms and physical signs suggested a diagnosis of tuberculosis. Further explanation is required of the medical superintendent's comment that the group under consideration was "not wholly composed of very early cases, for tubercle bacilli are not found in a certain proportion of definitely intermediate and advanced cases." It is questionable whether a diagnosis of pulmonary tuberculosis is ever justified in the case of a patient who exhibits definite signs of intermediate or advanced disease, but whose expectoration, excretions, or secretions, have never yielded tubercle bacilli, despite careful and repeated search by a competent bacteriologist.

A further illustration of the need for more careful classification of pulmonary tuberculosis is provided by the annual report of the *Winsley Sanatorium*, a report apparently designed to meet the requirements of a lay committee alone. The "admissions" are divided into three classes, but no data are given as to the grounds on which the classification is based, nor is any reference made to the bacteriological examination of sputum except the bare statement that tubercle bacilli were found at one time or another in 136 cases out of a total of over 300. The discharged patients are also divided into three arbitrary classes. Of Class I. 77 per cent. were reported as "fit for work" on discharge; over 47 per cent. of Class II., and even 17·5 per cent. of those allocated to Class III., were declared to be in the same fortunate position. As the average length of stay of patients discharged during the year is given as 112·6 days we are driven to the conclusion either that the methods of classification are peculiar to this institution or that its treatment yields astonishingly satisfactory results. Turning to the latter we learn that "bacillary emulsion vaccine has been used with beneficial results in a limited number of suitable cases," that "the usual routine treatment was employed—namely, rest, walking exercise, and the usual grades"—whilst "tuberculin was used in suitable cases and artificial pneumothorax therapy was employed in cases which were judged suitable for it."

Those who are in charge of institutions for the tuberculous are under an obligation to their patients to provide the best treatment that our present very limited knowledge permits. There is no reason to suppose that they fail in this respect, but as indicated above, they are also under obligation to their colleagues to supply evidence of the value of every method of treatment employed. Such evidence must rest upon observed facts and deductions drawn from them. It is to be regretted when vague speculations and loose statements are given in place of scientific evidence.

The reports of the tuberculosis *After-care Associations at Walthamstow and Leyton* should be read by those who are inclined to question the value of organisations of this kind. The former in particular serves a much wider purpose than that of presenting a balance-sheet and summary of work accomplished. An introduction gives a brief account of the anti-tuberculosis campaign since the year 1912, when the Insurance Act became operative, outlines the present scheme of treatment, and explains the need for voluntary work if the scheme is to be effective. The work of a care association may make all the difference between hope and despair to a family whose head is stricken with tuberculosis. Still more important, however, is its work as an educational influence, especially to-day when there is a danger that ears deafened by the shouted exaggerations of the propagandist may fail to catch the still small voice of reason.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 16TH, 1927.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 156 (last week 185); scarlet fever, 1553; diphtheria, 747; enteric fever, 84; pneumonia, 659; puerperal fever, 39; puerperal pyrexia, 128; cerebro-spinal fever, 4; acute poliomyelitis, 10; encephalitis lethargica, 27; continued fever, 1; dysentery, 10; ophthalmia neonatorum, 115. There were no cases of cholera, plague, or typhus fever notified during the week.

*Deaths.*—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 21 (0) from measles, 3 (1) from scarlet fever, 14 (5) from whooping-cough, 20 (7) from diphtheria, 46 (9) from diarrhœa and enteritis under two years, and 21 (0) from influenza. The figures in parentheses are those for London itself.

# The Services.

### ROYAL ARMY MEDICAL CORPS.

Maj. A. L. Otway retires on retd. pay on account of ill-health and is granted the rank of Lt.-Col.

The undermentioned Lts. (on prob.) are confirmed in their rank: R. V. Franklin, G. Anderton, E. H. Hall, G. A. Walmsley, A. Sachs, R. A. M. Humphrey, R. T. P. Tweedy, and T. E. Moles.

#### TERRITORIAL ARMY.

Maj. W. D. Watson, from R.A.M.C. (T.A.), to be Col. and A.D.M.S. 54th (E. Anglian) Div., T.A., vice Col. G. A. Troup.

Maj. A. A. Hingston, having attained the age limit, is retd. and retains his rank, with permission to wear the prescribed uniform.

Maj. D. M. C. Church resigns his commn.

Capt. I. M. Pirrie to be Maj.

#### TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. C. W. Eames, having attained the age limit, relinquishes his commn. and retains his rank.

Maj. F. Hauxwell, from the Active List, to be Maj.

### ROYAL AIR FORCE.

Temp. Lt. H. J. Eagleson (General List, Army, Dental Surgeon) is granted a temp. commn. as a Flying Officer on attachment to the R.A.F.

Squadron Leader J. R. Crolius is placed on the retired list at his own request.

### AUXILIARY AIR FORCE.

No. 605 County of Warwick (Bombing) Sqd.: J. S. Jerome to be Flying Officer.

### INDIAN MEDICAL SERVICE.

Lt. D. Kelly to be Capt.

The King has approved the relinquishment of his temp. commn. by Temp. Lieut. Aziz Khan Mahomed Khan.

Maj.-Genl. S. F. St. D. Green to be officiating Director of Medical Services in India, vice Maj.-Genl. W. H. Ogilvie, on leave. Maj. H. P. Rudolf to be Specialist in Gynæcology and Midwifery, Lucknow District, Lucknow, vice Lt. W. Scott, vacated. Capt. L. A. J. Graham to be Specialist in Dermatology, Presidency and Assam District, vice Maj. H. P. Hart, vacated. Capt. A. C. Chatterjee has been appointed to act as Police Surgeon, Calcutta, vice Maj. J. O. De, on leave. Lt.-Col. Anthony to officiate as Surg.-Genl., Bombay. Maj. S. Gordon, senior medical officer, Zhob, Independent Brigade Area, has been appointed to command the Indian Military Hospital, Loralai, vice Capt. A. I. Cox, vacated. Lt.-Col. H. R. Nutt, civil surgeon, Allahabad, has been appointed to Medical Charge of the Central Jail, Allahabad, vice Lt.-Col. C. E. Palmer, on leave. Lt.-Col. W. Parr has been reposted as Civil Surgeon and Superintendent, Mental Hospital and Robertson Medical School, Nagpur. Dr. Narbada Prasad Shrivastava, officiating Civil Surgeon and Superintendent, Mental Hospital and Robertson Medical School, Nagpur, has been posted as Officiating Civil Surgeon to Akola. Lt.-Col. W. S. Willmore has been appointed Inspector-General of Civil Hospitals, Bihar and Orissa. Maj. M. A. Rahman, Principal, Agra Medical School, to officiate as Civil Surgeon, Agra. Dr. Ishtiaq Husain Rizvi, Lecturer on Medical Jurisprudence and Hygiene, Agra Medical School, has been appointed as Medical Officer in Immediate Charge, King Edward's Hospital, Lucknow. Dr. B. M. Gupta, assistant public analyst, to officiate as Public Analyst to the Government, United Provinces.

# Correspondence.

"Audi alteram partem."

## VENEREAL DISEASE AND PROFESSIONAL SECRECY.

*To the Editor of* THE LANCET.

SIR,—There is no doubt that we should all wish to be free from a most unpleasant duty, and it may also be true that our obligation to give evidence may deter some patients from taking treatment. That side of the case is well known and has been often stated. But there is another.

First, there is at the present time no greater danger to liberty than that executive departments should be their own law makers. It has been frequently allowed of late years, but it is directly contrary to the principle that every executive officer is like every other man bound by the common law. If the Inland Revenue were involved instead of the Ministry of Health you would be up in arms at once, and the Ministry of Health is one of the worst offenders in this respect and has been bitterly complained of by medical men. I am, therefore, heartily glad on this account that its regulation has been disallowed.

Secondly, the one maxim that runs through the whole of English law and English history is that every man shall at whatever cost have justice. You argue that he is to be deprived of the evidence by which alone he can obtain it partly because it detracts from the dignity of medicine, and partly because it may damage the public health, to provide it. I have no hesitation in declaring that justice is more important than either.

I am, Sir, yours faithfully,

July 27th, 1927. W. P. HERRINGHAM.

*To the Editor of* THE LANCET.

SIR,—Your leading article is an opportune reminder to the profession of the persistent and insidious lay encroachment on the immemorial principle of medical professional secrecy. The past week has seen an effort on the part of a civic corporation to make it compulsory for doctors practising within its area of operation to notify to a public authority the presence of venereal disease in their patients. The Corporation of the City of Liverpool inserted in a Bill, which came for its final consideration to the House of Commons last Tuesday, the following clause:—

157. (1) In the following cases venereal disease shall be deemed to be an infectious disease to which the Infectious Disease (Notification) Act, 1889, applies (that is to say): (*a*) Any infant under two years of age suffering from any such disease; (*b*) any person (not being a child) suffering from any such disease who after being informed by any medical practitioner attending on or called in to visit him or by the medical officer that further treatment is necessary in order to effect a cure of such disease refuses or neglects to undergo such further treatment: Provided that notwithstanding anything contained in the said Act it shall not be the right or duty of any person other than a medical practitioner to give notice to the medical officer of any case of venereal disease.

(2) In this section the expression "venereal disease" has the same meaning as in the Venereal Disease Act 1917.

This clause (No. 157) forms part of a document of 136 folio pages. It attracted no general attention, and it was only the timely intervention at the last moment of a small group of Members, of whom I was one, that saved the enforcement of this monstrous rule upon the medical profession of Liverpool. The legislation which thus narrowly escaped enactment is in flagrant conflict with the regulations laid down by the Local Government Board in 1916 for the conduct of medical departments established for the prevention and treatment of venereal diseases. These orders contained these significant suggestions:—

5. "The arrangements for out-patient treatment will form the most important part of the scheme of the Council,

and these arrangements will vary to some extent according to local circumstances. But in all cases it will be important to arrange *that the clinics are not specially designated as for venereal diseases and that nothing is done to distinguish the patients who attend for treatment of these diseases.*" (The italics are in the original.)

6. . . . " The medical officers will probably find it necessary to obtain the names and addresses of patients for the purpose of subsequent communication with them and in order to arrange for continuity of treatment, but this information should not be used for any other purpose whatever. By Article II. (2) of the Regulations, all information obtained in regard to any person treated under a scheme approved in pursuance of the Regulations must be regarded as confidential, and it is essential for the success of any measures designed to deal with venereal diseases that patients should be fully assured as to the secrecy of the arrangements."

The purpose of these regulations is obviously to encourage the early treatment of venereal disease by shielding the patient from any publicity that could possibly be avoided. The forms in use at St. Mary's Hospital (which I enclose) demonstrate the elaborate precautions there taken to conceal the identity of the patient.

Your report says that Mr. Justice McCardie, in the case you comment upon, ruled that " in a court of law the doctor had no privilege similar to that held by a solicitor or other legal adviser." I believe that public opinion is ripe for the extension of that privilege to medical advisers, however strongly the legal profession may oppose such extension, and that the medical profession would be forcing an open door in demanding that the privilege of professional secrecy shall be enjoyed by them upon the same terms as by the lawyers.

I am, Sir, yours faithfully,
E. GRAHAM LITTLE.

House of Commons, July 25th, 1927.

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*To the Editor of* THE LANCET.

SIR,—Your admirable leading article deserves, and has I am sure earned, the gratitude of the great majority of those whose work lies in the treatment of the diseases mentioned. Not infrequently a married patient has asked me whether all information that is given will be treated in absolute confidence even in the event of legal proceedings being instituted in the future. I have always assured patients that I considered that all information given in professional confidence could not under any circumstances honourably be divulged except with the patient's sanction and that I should maintain this attitude even in a court of law.

I think that the very great majority of medical and lay opinion would certainly support this view when the question involved was anything short of crime. I am not at all certain that a majority would not include all crimes, with the exception of murder, as venereal infection is not infrequently associated with sexual crime. As you rightly observe, " if protest is to be treated as a mere formality . . . . the public will soon learn to distrust the alleged secrecy," and I think those doctors who have conscientious scruples in betraying a professional secret should be willing to go to prison for conscience sake, as honourable men have so frequently been called upon to do in the past, rather than be coerced into what they consider a dishonourable act.

The law is, after all, only the wish of the people, and if a large number of people desire the alteration of a law, and a small number of people are willing to sacrifice themselves in order to obtain such alteration, it certainly will not be long before legal effect is given to the wishes of the people. In my opinion, the prevention and cure of venereal disease demands that professional secrecy should be maintained at all costs.

I am, Sir, yours faithfully,
H. WANSEY BAYLY.

Harley-street, W., July 25th, 1927.

## THE MORTALITY FROM HÆMATEMESIS.

*To the Editor of* THE LANCET.

SIR,—I have read with great interest the communication from Dr. Ernest Bulmer in THE LANCET last week concerning the mortality from hæmatemesis observed at the General Hospital, Birmingham. Like all statistical inquiries, it is likely to give rise to erroneous deductions, and as such deductions may lead to changes in the treatment of such cases, it is well to call attention to one or two points arising from his paper.

In the first place, Dr. Bulmer has given figures which concern the mortality amongst all cases in whom hæmatemesis was so severe as to lead to admission to hospital. His figures, therefore, represent the mortality in a highly selected group of patients. They represent the mortality amongst patients exhibiting obvious and massive bleeding, and my first point is that they must not for a moment be taken to represent the risk of death amongst all patients who bleed from a peptic ulcer. Still more must we avoid imagining that they give any index of the risk of death from hæmorrhage amongst patients suffering from either acute or chronic ulceration of the stomach and duodenum.

It is to be noted that Dr. Bulmer's figures have been quoted for a period of more than 24 years. The total deaths from hæmatemesis in that period were 67 in all, or in other words, fewer than three persons per annum die from this cause in the General Hospital, Birmingham. A minute's reflection is, I think, sufficient to convince one that the mortality from hæmatemesis is unimportant when contrasted with the risk of death from perforation or from operative interference and its complications.

The figures collected by me from the post-mortem records of the Middlesex Hospital, and those quoted by Dr. A. F. Hurst from the records of Guy's Hospital, appear to show a lower mortality-rate from hæmatemesis than do those recorded in Dr. Bulmer's paper. It is not suggested for a moment that this difference is in any way due to fundamental differences in the treatment adopted in various hospitals, but it may well be explained in part by existing ambulance facilities, as Dr. Bulmer himself says, or, again, it may to some extent be due to the number of medical beds in our hospitals reserved for emergencies, as opposed to routine medical admissions.

Whatever be the explanation, I do not think that careful examination of Dr. Bulmer's figures can properly lead to the conclusion that death from hæmatemesis is a very important risk amongst patients suffering from ulceration of the stomach or duodenum. I need not add that in stating this I make no suggestion that such hæmorrhages are not very serious complications of peptic ulcer, and ones which make the institution of careful treatment necessary in all such cases.

I am, Sir, yours faithfully,
T. IZOD BENNETT.

Harley-street, W., July 25th, 1927.

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## DIET AND DIETISTS.

*To the Editor of* THE LANCET.

SIR,—In an endeavour to deal with the assertion made by some of the advocates of whole wheat meal bread that " cancer, appendicitis, and many other diseases are the result of the use of white bread," the letter which appears over six signatures in your last issue calls for the serious attention and consideration of your readers. In that letter great stress is laid upon the biological value of vitamin B and its presence in white bread because yeast, which is believed to be rich in that vitamin, may have been made use of in leavening our loaf. I would observe, however, that your correspondents overlook the fact that yeast is used in bread making not because of any elusive or mysterious vitamin which it may

add to the bread, but because it attacks the sugar and generates carbon-dioxide, producing thereby a light and spongy loaf. It is, of course, common knowledge that in the aeration of the loaf of bread yeast may be dispensed with altogether, and as a matter of fact much of the bread found on the market to-day, which is equally as light and spongy as that made with yeast, has been made by incorporating already formed carbon-dioxide with the dough.

I would point out, moreover, that your correspondents who have subscribed to the aforesaid letter take no thought of what happens to their vitamin B in white bread when so-called chemical improvers (especially a chemical improver like persulphate of potash) are incorporated with the dough containing yeast. The persulphates are believed to act as oxidising agents, but, because of the gluten in bread, if persulphate of potash is the improver used persulphate of ammonia may be formed, and acting as a reducing agent this persulphate is likely to destroy any vitamin which may have been introduced into the bread by the yeast.

I am, Sir, yours faithfully,

Harley-street, W., July 23rd, 1927. JAMES OLIVER.

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*To the Editor of* THE LANCET.

SIR,—With reference to the present controversy on the merits of wholemeal as opposed to white bread, the following facts may be of interest. The population of the Punjab consists of roughly 22,000,000 of people. The immensely larger proportion of this population is concerned, either directly or indirectly, in the cultivation of the soil. Their diet consists of wholemeal bread and dal, varieties of pulses with large quantities of cooked and uncooked vegetables, and many varieties of fruit. There is no question of the wholeness of the meal. It consists of the whole grain coarsely ground in stone querns worked by hand and is subjected to very little sifting or sieving. This meal is worked up into a dough with water and patted out into a sort of flat cake between the hands and then lightly scorched upon heated iron sheets or "tawas." These cakes of unleavened bread form the staple diet of these millions from whom the bulk of the soldiers of the Indian Army are drawn. Speaking as a surgeon who has practised and lived amongst these people for the past 25 years, I can testify to the great rarity of such diseases as appendicitis, gastric and duodenal ulcer, gall-stone disease and visceroptosis amongst them, and, finally, to the infrequency of cancer in any of its forms. I wish it to be understood that I am referring to the agricultural and pastoral tribes of the Punjab and not to the literate and clerical classes, many of whose members have departed in a greater or less degree from the simple habits of their forefathers.

Owing to the irresistible and continuous operation of the laws of caste and custom, there can be few people whose diet has altered less during the past 6000 years or so, and in so far as the physical condition of a people is an expression of their diet, the physique of the average Punjabi may be regarded as the resultant of dietetic factors which have been at work upon a whole race for many thousands of years I shall be asked, "What are the results of these dietetic factors which have been in continuous operation for so many years?"

Well, to commence with, rickets in any shape or form is rare in the villages. The Punjabi mother suckles her own infant. If from any cause the mother is unable to suckle her child it usually perishes, since bottle-feeding is unknown amongst this people. How many a time have I not seen amongst the women of Anglo-Saxon stock the desire and the inability to nurse their own children. The teeth of the Punjabi are magnificent; caries is rare, and it is common to see men of 40 years of age and over with 32 teeth and not a trace of caries in one of them. The toughness and vitality of the Punjabi peasant is proverbial in the North of India, and I must reluctantly confess that their physique compares very favourably with that of the inhabitants of these islands.

There is one remarkable respect in which the Indian soldier differs from his British comrade, and that is in his strikingly smaller liability to appendicitis. I took the trouble to work out the averages over a period of some 17 years for the two armies in India, and found that the incidence for British troops was just ten times greater than in the Indian Army. Here we have two bodies of men, either in the prime of life or in the flower of their youth, undergoing the same training, exposed to the same climatic influences, performing the same duties, in which we find that the incidence of appendicitis is just ten times greater in the red meat and white bread eaters than in the wholemeal bread and pulse eaters. The large amount of cellulose in this diet of wholemeal and pulse provides an efficient element of "roughage"—in the absence of which the intestine appears to be unable to perform its functions properly—and leads to a regular and frequent discharge of the waste products of digestion, and a consequent immunity from that intestinal stasis from which all civilised peoples suffer in a greater or less degrees.

To sum up: We find that the nation which subsists on a diet of pulse and wholemeal bread enjoys a striking immunity from the very diseases and disabilities from which our own people suffer so grievously, albeit they are nourished on that wholesome white bread which arouses the admiration of some of our food specialists. On the other hand, we have a C3 race with a dentition so debased and decayed that they are unable even to masticate the emasculated paste which masquerades under the title of bread in this country, mothers who are unable to suckle their own children, widespread stunting and deformity from infantile rickets, an appallingly high percentage of rejections for physical unfitness amongst those recruits who present themselves for the army and navy, and finally a cancer mortality of one death in ten as certified in our bills of mortality returned by the Registrar-General.

He who can find a cause for satisfaction in such a state of affairs must in very truth be a super Mark Tapley. I am, Sir, yours faithfully,

July 25th, 1927. H. HALLILAY.

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*To the Editor of* THE LANCET.

SIR,—Will you kindly allow me to mention that THE LANCET of Oct. 29th, 1921, states: "The suggestion that the loss of vitamins in the germ may be compensated by baking with yeast has not been substantiated." The Public Health Report of the United States Public Health Service for May 3rd, 1918, describes experiments made on pigeons using fermented white bread, and states: "The addition of yeast (in amounts used by bakers) in the preparation of bread from highly milled flour does not prevent the appearance of polyneuritis in birds fed on this food, but prolongs slightly the period of incubation." Recent researches described by Prof. Drummond show that the "requirements of the higher animals for vitamin B are quantitatively related to the food catabolised in the body." The amount required is, therefore, considerable. Finely ground whole-meal is an easy and cheap method of obtaining our daily need of vitamin B.

The abstraction of mineral salts from white flour is most injurious, for foods which have been deprived of these vital constituents do not support life. Whole wheat contains five times more phosphorus than fine white flour. When combined with the lime found especially in green leafy vegetables the essential phosphate of calcium results by interaction in the body. This is essential for the formation of bone and teeth and the nourishment of the nervous system. Important digestion experiments made by the Royal Society prove that bread containing 90 per cent. of the wheat grain can be generally digested, provided it is ground to a uniform fineness so that every particle will pass through a 16th-inch mesh wire sieve. Bread

and flour constitute about two-fifths of the weight of food consumed by people of limited means, and are almost the sole food of many poor children whose mothers have neither the money nor the time to prepare the varied diet which enables wealthy people to utilise white bread. Scientific experiments and practical experience show that *finely* ground whole wheat meal bread is a healthy, nourishing food, suitable for all classes of the community, and being sold cooked, ready for eating, is a great advantage for poor overworked mothers.

It is hoped that all interested in the welfare of children will study this important subject, and endeavour to secure for the country a bread which will be a real staff of life, and give poor children a better chance of obtaining healthy bodies with good bones and teeth and well-nourished brains and nerves.—I am, Sir, yours faithfully,

MAY YATES,
Founder and Hon. Secretary, The Bread and Food Reform League.

37, Essex-street, London, W.C., July 22nd, 1927.

*** We have received, among other contributions to this controversy, a letter from Dr. Henning Belfrage, reaffirming the position which he took up last week, and suggesting that in view of the different medical opinions enunciated the Medical Research Council should give the matter early attention. —ED. L.

## SEPARATION OF "CONTACT" CHILDREN OF TUBERCULOUS FAMILIES FROM HOME INFECTION.

*To the Editor of* THE LANCET.

SIR,—The experience of the Grancher organisation in France of "boarding out" the "contact" children of school age of tuberculous families, and of Léon Bernard, Debré, and Calmette, of the separation of infants from birth to school age at centres associated with a creche at the Hôpital Laennec, Paris, is well known now in this country as of proved value in the prevention of tuberculosis.

Plymouth made a start in this direction in 1924 by establishing a hostel for "contact" children of all ages, in premises in the suburbs of the town leased from the War Office, and its good work is fairly widely recognised here. Up to the present the hostel has depended on voluntary subscriptions, as the coming flag day on July 23rd, 1927, but the committee believe that they will receive support in the future from public bodies, such as health committees, boards of guardians, and others.

Practically all tuberculosis schemes employ systematically an expensive staff of doctors and health visitors to examine the "contacts," and advise the heads of the family of the necessary measures for prophylaxis, but in the majority of cases there is not the least possible chance for such advice to be carried into effect by the family, owing to adverse social conditions, especially the general lack of accommodation in the home and the loss of wages and income attendant on disablement from the disease. In fact, the examination of "contacts," speaking from a practical aspect, is a great waste of public money, because it begins and ends with advice.

The hostel system of separation of "contact" children, as practised in Plymouth, supplies the required means to the end in view, and is complementary and not a rival to the "boarding-out" system as advocated and practised in this country at St. Leonards-on-Sea by Dr. W. Bolton Tomson, and by the London County Council and by Dr. G. Jackson, F.R.C.S., at Plymouth.

Both systems deserve the support of public health and tuberculosis care committees and the community in general.

I am, Sir, yours faithfully,

F. G. BUSHNELL,
Member Plymouth Borough Public Health and Tuberculosis Care and After Care Committees.

Plymouth, July 15th, 1927.

## QUININE AND CHINOSOL SUPPOSITORIES.

*To the Editor of* THE LANCET.

SIR,—Some of the comments by Dr. Norman Haire on the letter published in THE LANCET of July 2nd on behalf of the Medical Research Committee of the C.B.C. may confuse your readers. His American surgeon friend, who "was convinced" that a patient "had become sterile" as a result of using "chinosol jelly" is beside the mark; we were not discussing a "jelly," but giving the result of over 800 cases using a *greasy* suppository.

Then Dr. Haire says: "Chinosol has been widely used for this purpose for some years . . . . but the results . . . . have been even less satisfactory than those obtained with quinine," thus implying that there is no novelty in our Committee's communication. On the contrary, members of that Committee initiated discussion on the application of chinosol to contraceptive problems years ago, and about three years since they instructed the manufacturer to produce varieties for their investigation. The earlier types were not satisfactory, but were doubtless (like most things done by the C.B.C.) immediately imitated. All accurate evidence is valuable and would be appreciated by our Committee, and on its behalf I ask Dr. Haire, whose "results with chinosol" *greasy* suppositories were "unsatisfactory," what strength chinosol was used and what were the ingredients of the suppository?

The perfected form we have tested on over 800 cases can hardly yet have been tested by outsiders as it was announced in your columns only on July 2nd.

I am, Sir, yours faithfully,

H. V. ROE,
Hon. Secretary, C.B.C., Medical Research Committee.

108, Whitfield-street, London W., July 25th, 1927.

## CANCER OF THE LUNG.

*To the Editor of* THE LANCET.

SIR,—I have read Dr. J. B. Duguid's article and your leading article on this subject with much interest (THE LANCET, July 16th, pp. 111 and 125). From the clinician's standpoint it seems desirable to refer to one or two points where wrong inferences may possibly be drawn.

Everyone is agreed that the incidence of cancer of the lung is high in this district. But I do not think we are agreed that this increase has occurred within the last few years. I regard Dr. Duguid's Table I. as going far to prove that the incidence has been fairly constant for the past 25 years, and that its increase began about that length of time ago. Table II. does not seem to me to negative that. It must be quite 17 years ago that a well-known professor of pathology at the end of his first week's work in Manchester remarked to me, "We have had two P.M.s on cancer of the lung this week, and during all my time at —— hospital I only saw a couple." That remark seemed to me to show that it is true that the incidence in Manchester is greater than elsewhere, and that it began to be greater a good many years ago—certainly before the influenza epidemic of 1918–19. I quote it here as I think the inference may be drawn from your leading article that the increase is very recent, and to draw such an inference might at the present juncture have the effect of guiding any further investigations in a wrong direction.

As a clinician I have one or two other remarks to make: (1) It might be assumed that the incidence is limited mainly to the working classes. This is by no means the case; in Manchester we have lost several well-known public men from this disease in recent years. (2) I have no statistics with regard to tobacco, but I think that in almost every case I have seen and known of the patient has been a regular smoker, generally of cigarettes. To this there have been the following exceptions: (*a*) Two ladies who succumbed to the disease unusually rapidly. In

each case the lady lived "hard by" a railway station, where trains frequently stopped, and where smoke from the engines must have at almost all times pervaded both house and garden. (*b*) A group of acute adolescent cases, all males, in which I regard the condition as being usually mediastinal Hodgkin's disease.

I was surprised to find when demonstrating two of these cases to some members of the American Inter-State Post-Graduate Assembly two years ago that they were looked upon quite as curiosities, but I have since found that numbers of medical men in this country also have never met with the disease, or at least have never recognised it.

I am, Sir, yours faithfully,

Manchester, July 18th, 1927. FRANK E. TYLECOTE.

## POOR-LAW HOSPITALS.

*To the Editor of* THE LANCET.

SIR,—Dr. F. J. O'Donnell's article in THE LANCET of July 16th (p. 116) is full of constructive criticism. To touch upon one point only, there can be no question that the mass of patients in Poor-law hospitals must provide unrivalled opportunities for clinical research. From the surgical standpoint, if the hospital is properly equipped, these opportunities are almost inexhaustible. Unfortunately, the professional degradation, which is inseparable from being associated with Poor-law, often deters those who are best fitted from participating in the work. At the present time, I think, British surgery is considerably hampered by an absurd dilemma. On the one hand, there is the assistant surgeon of the large teaching hospital, trained to the hilt, keen, and in every way fitted to undertake surgical research, but paralysed because he is "bedless," or almost so (according to locality) during what are, potentially, the most productive years of his short life. On the other hand, there are thousands of surgical beds under Poor-law administration, staffed, in many instances, by those who have had comparatively little surgical training, and have no desire or aptitude to further their science and art. It can only be to the interests of the public and the profession at large to see that this absurdity is rectified.

I am, Sir, yours faithfully,

Birmingham, July 18th, 1927. HAMILTON BAILEY.

## "TENNIS LEG."

*To the Editor of* THE LANCET.

SIR,—Your annotation (July 9th, p. 78) and Dr. G. P. James's letter (July 16th, p. 143) on this subject will, I hope, help to emphasise the value of early physical treatment for all muscle injuries when open operation can be avoided—this in spite of the somewhat scant praise in your annotation which reads: "There can be little doubt, we think, of the benefits to be obtained by massage and heat and early or immediate gentle movement in the slighter cases of this not uncommon lesion."

It is always refreshing to see tribute paid to the pioneer work of Wharton Hood, and it is sad to think, as Dr. James tells us, that his book is out of print. I cannot help feeling, however, that physical treatment has advanced since Wharton Hood's day, and that perhaps Dr. James might be able to hasten recovery still more if he were to avoid the preliminary rest for 48 hours. At the end of this time, he advises us to "get the patient to walk, or rather hobble, about."

Among many similar cases, I shall always call to memory one Saturday morning at hospital, where I was working hard in my department in order to get off in time to go down early to the inter-'varsity sports. About 11.30 the Cambridge first string in the high jump hobbled into the department, unable to put his heel to the ground; while at practice he had ruptured a few fibres of the gastrocnemius at their insertion into the soleus tendon. He arrived well within an hour of the injury, and for the next hour or so I devoted myself to the forlorn hope of being able to turn him out in the afternoon. Not only was he able to jump, but he won the event, and thereby, incidentally, the sports for Cambridge. One of my most treasured letters is that which he wrote me the same evening, in which he says: "You were the means of pulling the fat out of the fire for Cambridge, so we all owe you a debt." Before, and since, I have always regarded the high jump as a dull event, but I still remember the interest it had for me that day, and my anxiety lest the strapping should prove too loose to support adequately, or so firm as to impede freedom.

Would it not be well if the value of physical treatment were more widely recognised for this type of injury, and if opportunity were given to those who carry it out to start their treatment at the earliest possible moment?

I am, Sir, yours faithfully,

Park-crescent, W., July 18th, 1927. JAMES MENNELL.

## TETANUS FOLLOWING INTRAMUSCULAR INJECTION OF QUININE.

*To the Editor of* THE LANCET.

SIR,—I read with great interest Dr. J. Macqueen's note on four cases of tetanus following intramuscular injection of quinine in THE LANCET of June 18th. I had a similar case about three years ago in which the incubation period was considerably longer than in Dr. Macqueen's cases—namely, two months.

An adult, 40 years old, a member of H.H. the Amir Abdulla's staff, suffered from tertian malaria while on pilgrimage in Mecca in 1924. The administration of quinine by the mouth up to 2 g. daily was ineffective. He was then given 1 g. of quinine bihydrochloride into his left deltoid. The rigors stopped and he returned to Amman in perfect health, not even complaining of irritation at the site of injection. Two months later I was called to see him and found that he had already developed trismus and the injection site was sore; no other wound could be detected. He died 24 hours afterwards in spite of intraspinal injection of antitetanic serum.

In this case the skin had been painted with 10 per cent. tincture of iodine; the syringe and needle were boiled for 20 minutes; the quinine ampoule was prepared by a well-known French company; the remaining 11 ampoules of the box were injected into companions of the deceased who are all in perfect health to-day. Nevertheless, it must be admitted that tetanus spores introduced with the needle gave rise after an incubation period of two months to a sudden fatal attack of tetanus.

For the avoidance of such a calamity I suggest that quinine should not be given by intramuscular injection, or if it must be so given, that a prophylactic dose of antitetanic serum should be given at the same time.

I am, Sir, yours faithfully,

DJAMIL F. TUTUNJI,
Private Physician to H.H. the Amir Abdulla.

Amman, Transjordania, Palestine, June 29th, 1927.

THE LATE DR. R. A. BAYLISS.—After a long illness Dr. Richard Arthur Bayliss died on July 6th at Weston Park. He was the son of Richard Bayliss, of Spondon, Derbyshire, and was educated at Loughborough School and St. Thomas's Hospital, London, qualifying as M.R.C.S. Eng. in 1890. He spent two years as house surgeon at Ryde Infirmary, and went to Bath in 1897 as resident medical officer to the Royal Mineral Water Hospital. Later he took up private practice in the town, but in 1912 he had to stop this work owing to poor health. For many years he was connected with the Bath Eastern Dispensary. When he retired he went to live in the western district, and became a member of the parish council. Dr. Bayliss was a man of many interests, including horticulture, photography, and cricket. He was married in 1900 and leaves a widow with a son and a daughter.

# BRITISH AND AMERICAN NEUROLOGISTS.

## MEETING IN LONDON.

A JOINT meeting of the American Neurological Association and the Section of Neurology of the Royal Society of Medicine has been held in London this week, the chair being occupied successively by Sir JAMES PURVES-STEWART and Dr. CHARLES L. DANA (New York).

At the Tuesday meetings the first paper was one by Dr. BERNARD SACHS (New York) and Dr. SIDNEY SCHWAB (St. Louis) on Symptomatology of a Group of Frontal Lobe Lesions, with a Study of Personality Alterations. The so-called classical symptoms of these lesions were, they said, so often absent that it had been difficult for the surgeon to see the cases at the early stage at which they were operable. They presented a study of 25 cases; in 10 the lesion was in the right frontal lobe, and in 15 it was in the left; and in each case the diagnosis was either confirmed at operation or post mortem. Six of the 25 patients died; five of them died following or soon after operation, whilst the sixth came into hospital suffering from pneumonia and died within 48 hours, not having been operated on. In ten the tumour was a glioma, in seven an endothelioma, in two an abscess, in two a gumma, in one an arachnoid cyst, in one a chronic inflammatory mass surrounded a foreign body, whilst in one there was a large basal-celled carcinoma involving almost the whole left frontal lobe. The symptoms far the most frequently present were emotional changes, and changes in the optic disc. Unilateral tremor was present in only five of the cases, in three of which it was on the side opposite to the lesion. They had not found it a very reliable symptom. They laid much stress diagnostically on a weakness of the lower facial muscles on the side opposite to the lesion and also on the mental change, which was of a gradually progressive character, with a striking weakening of memory for recent events.

Dr. GORDON HOLMES spoke of the many cases of gunshot wounds he had had the opportunity of seeing in which the area damaged was the frontal lobe. In some the mental symptoms were very prominent, though in others there were none. Optic atrophy or disturbance of the sense of smell was to be expected only in the case of basal lesions, when there was direct pressure on the olfactory bulb or tract or upon the optic nerve. He agreed about the significance of facial weakness and mental change.

Dr. JAMES COLLIER agreed with Dr. Gordon Holmes. He then read a paper entitled Retraction and Ptosis of the Eyelids in Ophthalmoplegia. In rare instances, he said, retracted lids might be the only sign of a lesion in the mesencephalon, the lesion in these cases being further forward than was the lesion productive of ptosis and a small pupil. He had seen cases of Parkinsonism which showed ptosis, and he had under care now a case of Graves's disease with marked ptosis.

Dr. W. PENFIELD (New York) read a paper on Cicatricial Contraction in the Brain. This was a study of the actual minute mechanism involved in the healing of cerebral scars, and the movements of cerebral tissue towards the injured area. It was illustrated by microphotographs. His conclusion was that a contracting scar of cerebral tissue must destroy a larger proportion of brain tissue than would result from removal of an equal amount of such tissue by operation.

Dr. GORDON HOLMES and Mr. PERCY SARGENT jointly contributed a paper on Endothelioma Compressing the Optic Chiasma. It dealt with ten cases of this form of tumour arising above the diaphragma sellæ and pressing on the optic nerves. These tumours were accessible to surgery, and where they had not attained a very large size could be completely removed; hence the importance of early diagnosis. The tumour was a typical endothelioma in all ten cases. In three of them it was attached to the anterior clinoid process; in two it was large enough to compress the base of the brain. In one case there were epileptiform seizures, and in one the sense of smell was defective. Points in the differentiation of these from stalk tumours were given in a table.

Sir EDWARD SHARPEY-SCHAFER (Edinburgh) gave an account of his observations following experimental severance of cutaneous nerves in his own person. He had been able to show that interference with function produced by squeezing was recovered from very much sooner than interference caused by cutting with a knife.

Mr. NORMAN DOTT (Edinburgh) related a case of Unilateral Hydrocephalus in an Infant in which he successfully operated. The circumference of the head diminished by 3 cm. in three weeks.

Prof. EDWIN BRAMWELL (Edinburgh) described two specimens. The first was an intracranial aneurysm which arose from the posterior communicating artery. The third nerve was flattened out over the surface of the aneurysm, and immediately surrounding the aneurysm there was much pigmentation of the brain. The patient was a woman aged 31, and the history was of seven weeks' duration. Symptoms were at first headache in the frontal region, followed in a fortnight by intense pain in the region of the right eye, with giddiness and vomiting. Diplopia followed, with practically complete palsy of the third nerve. A fortnight after admission to hospital she suddenly developed acute symptoms and died, the later phases suggesting rupture of an aneurysm.

The other specimen was to illustrate cortical deafness, in a woman aged 62, whose brain Dr. Bramwell exhibited. There must in this case have been an embolus involving the arterial supply to the temporal lobe on either side. Post mortem, there was seen to be extensive softening involving the upper two temporal convolutions on the left side, and on the right side a softening which, on the surface, involved the supramarginal gyrus and parts of the temporal convolutions. Only five or six cases had been reported, said Dr. Bramwell, in which complete deafness resulted from a bilateral temporal lesion.

Dr. J. A. KILLIAN read a paper written by himself and Dr. M. OSNATO (New York) on the Chemical Composition of the Blood and Spinal Fluid in Epilepsy. Many attempts had been made, they said, to ascribe the ætiology of epileptic seizures to a metabolic basis, or to trace those seizures to a change in the composition of body fluids, but little biochemical evidence had been produced to support this contention. Their investigation had shown that epilepsy did not essentially entail impairment of renal function, nor of protein metabolism—sufficiently at any rate to modify the protein catabolites in the blood. At the time of an epileptic seizure there was a decrease in the blood cholesterol, and within 24 hours of the seizure the blood contained 15 per cent. less cholesterol than did normal blood. There was also, in these cases, an increase of lactic acid in the blood.

Dr. HENRY COHEN (Liverpool) read a paper setting out the results of his chemical studies on the formation of the cerebro-spinal fluid. His object was to ascertain whether the central nervous system made any contribution to the fluid. He and his colleagues were able to show that every known chemical change in the cerebro-spinal fluid could be grouped under one of four headings: (1) substances normally in greater quantity in the blood than in cerebro-spinal fluid were always increased in meningitis; (2) substances always present in greater quantity in cerebro-spinal fluid than in blood decreased in meningitis; (3) substances which were normally present in the blood but normally absent from the spinal fluid, passed into the spinal fluid in meningitis; (4) substances injected into the blood and under normal conditions not passing into the cerebro-spinal fluid, in meningitis passed into that fluid. The explanation was that the choroid plexus was damaged in meningitis, so that its permeability was increased: hence the composition of the cerebro-spinal fluid tended to approximate to that of the blood plasma.

Dr. J. FAVILL (Chicago) discussed the relation of the ocular muscles to the semicircular canals in rotationally induced nystagmus. He had attempted to systematise 26 different combinations of endolymph current or movement and assign to each a special response in the form of nystagmus; and he said he was able to predict from his findings the kind of nystagmus which would occur. He suggested that this knowledge might be applied to the early recognition of labyrinthitis.

Dr. A. C. BUCKLEY (Philadelphia) read a contribution setting out his observations concerning primitive reflexes, as revealed in abnormal mental states.

Dr. JOHN ECKEL (Buffalo) read a paper by himself and Dr. N. WINKELMAN (Philadelphia) entitled Productive Endarteritis of the Small Cortical Vessels in Severe Toxæmias. This was a study of the minute vascular changes following the ingestion of tainted meat and other foods, and was illustrated by many slides.—Dr. R. M. STEWART said he was interested to see that though one of the patients described had acute nephritis and the other had not, the picture presented by both was very similar. He thought the miliary foci and the softening which were found might have been due to a mild syphilitic infection of the cortex.—Dr. GORDON HOLMES referred to a number of men he had seen during the war, who were in a dug-out when a slowly burning poison shell came into the trench. Ten men were taken from it alive, most of them in an unconscious state. A few days later he was asked to see one of them as he had developed a confused mental state and various ocular palsies. A week later he had seen another of the men, who had suddenly become violently maniacal, and subsequently died within a few days. He had an opportunity of examining some of the brains, and changes were apparent in them very similar to those Dr. Eckel described. In the cases which Dr. Holmes saw there was vascular proliferation, considerable increase of reaction in the middle layers of the cortex and in the third and fourth layers. He understood from chemists that the slow combustion of the shell in question produced large quantities of carbon monoxide.—Dr. ECKEL replied that both the blood and spinal fluid gave a negative Wassermann.

Dr. EMANUEL MILLER discussed Mental Dissociation, its Relations to Catatonia, and the Mechanism of Narcolepsy, based on the case of a woman, aged 26, who complained of periodical attacks of disorientation, during which she was only vaguely aware of her surroundings. There were also periods during which sensation was disturbed down the left side of the body, lasting from a few minutes to several hours. About one in every ten cases of hysteria noticed that an emotion frequently brought on sleep or a state of mental dissociation. He frequently noticed the relationship between sleep and hypnosis. In hypnosis the subject passed through a phase of catalepsy with rigidity and relaxation.

Dr. ADOLF MAYER (Baltimore) referred to the researches of Dr. Percival Bell on this subject, and especially on the correlation of lesions in the subthalamus in connexion with disorders of sleep. The ordinary person's life consisted of the waking life and the sleeping life, and only the former had been adequately studied. How the nervous system was involved in the sleeping life would be one of the most important spheres of experimentation for the next 25 years.

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NATIONAL PLAYING FIELDS.—Lord Woolavington has sent a donation of £5000 to the Duke of York's national playing fields appeal. This brings the present total to over £285,000.

ISOLATION HOSPITAL EXTENSION.—Mr. Godfrey Locker-Lampson, Under Secretary of State for Foreign Affairs, has opened the extension of the Hornsey, Wood Green, and Finchley Isolation Hospital at Muswell Hill. The cost of the extension is estimated at £28,000.

# Medical News.

UNIVERSITY OF OXFORD.—At a Congregation held on July 23rd the following degrees were conferred:—

*B.M.*—O. Hooper, R. C. Probyn-Williams, J. W. Pugh, H. W. Allen, C. Charleson, J. L. Glover, P. F. Cluver, and Irene M. Titcomb.

The Theodore Williams Scholarship in Pathology has been awarded to Joyce Wright, Somerville College, and J. G. Reid, University College.

UNIVERSITY OF CAMBRIDGE.—Henry Barcroft, B.A., of King's College, has been elected to the Michael Foster Studentship awarded annually for the encouragement of research in physiology.

UNIVERSITY OF LONDON.—A meeting of the Senate was held on July 20th, Sir William Beveridge, the Vice-Chancellor, in the chair.

Miss D. L. Mackinnon, D.Sc. Aberd., was appointed as from August 1st, 1927, to the University Chair of Zoology tenable at King's College.

Dr. Mackinnon is at present Reader in Physiology at King's College and has published numerous articles and translations. She is a Fellow of the Royal Society of Tropical Medicine.

Prof. E. H. Kettle, M.D., M.R.C.P. Lond., was appointed as from Oct. 1st, 1927, to the University Chair of Pathology tenable at St. Bartholomew's Hospital Medical College.

Since 1924, Dr. Kettle has been Professor of Pathology and Bacteriology in the Welsh National School of Medicine, Cardiff. He studied at St. Mary's Hospital Medical School and graduated in 1907 taking the M.D. degree in Pathology in 1910. In 1907 he was appointed Assistant Pathologist, and in 1920 Pathologist, to St. Mary's Hospital. Later he became Director of the Department of General and Special Pathology in the newly formed Institute of Pathology and Medical Research. He is Vice-President of the Pathological Section of the Royal Society of Medicine and has examined for the Universities of London and Cambridge.

Mr. Bronislaw Malinowski, D.Sc. Lond., was appointed as from August 1st, 1927, to the University Chair of Anthropology tenable at the London School of Economics.

Mr. W. H. Linnell, Ph.D. Durh., was appointed as from the same date to the University Readership in Pharmaceutical Chemistry tenable at the School of Pharmacy.

Since October, 1926, Dr. Linnell has been Lecturer in Pharmaceutical Chemistry and Director of the Chemical Research Laboratories at this School.

The London School of Hygiene and Tropical Medicine (Departments of Bacteriology and Immunology, and of Epidemiology and Vital Statistics) was admitted as a School of the University, and the date of the appointment of Prof. W. W. C. Topley and Dr. Major Greenwood to the respective University Chairs in these subjects, tenable at this School, was changed from August 1st, 1928, to Oct. 1st, 1927.

The degree of D.Sc. was conferred on Mr. A. S. Parkes, of University College, for a thesis on the Occurrence of the Œstral Cycle after X Ray Sterilisation.

At recent examinations, the following candidates were approved:—

M.D.

*In Medicine.*—W. L. Ackerman, London Hospital; Doris M. Baker, St. Mary's Hospital; John Bevan-Jones, University College Hospital; T. S. Blacklidge, Guy's Hospital; R. T. Brain, London Hospital; Grace D. Chambers, London (R.F.H.) School of Medicine for Women and St. Mary's Hospital; A. C. M. Elman, University College Hospital; J. A. James, University of Bristol and London Hospital; A. T. Jones, University College Hospital; Georges Klionsky, St. Bartholomew's Hospital; Marjorie Low, London (R.F.H.) School of Medicine for Women; H. V. Morlock, St. Bartholomew's Hospital; Jean L. Smith, University College, Cardiff, and Charing Cross Hospital; Hilda N. Stoessiger, London (R.F.H.) School of Medicine for Women; H. C. C. Taylor, Guy's Hospital; Joseph Whitby, Middlesex Hospital, and Caroline I. Wright, Charing Cross Hospital.

*In Pathology.*—Joan M. Ross, St. Mary's Hospital; Doris M. Stone, London (R.F.H.) School of Medicine for Women.

*In Psychological Medicine.*—G. C. Berg, St. Thomas's Hospital; May K. Ruddy, Charing Cross Hospital.

*In Midwifery and Diseases of Women.*—F. C. Alton, St. Thomas's Hospital; Harold Burt-White (*University Medal*), St. Bartholomew's Hospital; Dorothy N. L. Leverkus, London (R.F.H.) School of Medicine for Women.

*In State Medicine.*—E. K. Macdonald, St. Thomas's Hospital and Royal Institute of Public Health.

M.S.

*In Surgery.*—D. H. Patey, Middlesex Hospital.

ROYAL SOCIETY OF MEDICINE.—The Society's house will be closed during August for the annual cleaning and repairs. The library will be open on week-days (excluding Monday, August 1st) from 11 A.M. to 6 P.M., except on Saturdays, when it will close at 1 P.M.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates passed in the undermentioned subjects:—

*Surgery.*—L. Ashkenza, Middlesex Hosp.; E. Clayton-Jones, Guy's Hosp. J. Miller, St. Bart.'s Hosp.; J. D. Ritchie, St. George's Hosp.; and E. A. Stroud, Birmingham.

*Medicine.*—A. F. Brigimen, Edinburgh; E. Clayton-Jones, Guy's Hosp.; W. H. Collins, London Hosp.; and B. Elliott, Durham.

*Forensic Medicine.*—S. A. Carr, Birmingham; E. Clayton-Jones, Guy's Hosp.; S. Goldman, London Hosp.; and S. B. S. Smith, St. Bart.'s Hosp.

*Midwifery.*—E. Clayton-Jones, Guy's Hosp.; P. F. Fanaken, St. Mary's Hosp.; and J. D. Ritchie, St. George's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: E. A. Stroud and E. Clayton-Jones.

UNIVERSITY OF EDINBURGH.—The Earl of Balfour, as Chancellor of the University, presided on July 28th, when the honorary degree of Doctor of Laws was conferred on the following members of the medical profession:—Prof. Vittorio Ascoli, Prof. Harvey Cushing, Prof. C. L. Dana, Lord Dawson of Penn, Prof. Archibald Donald, Dr. C. E. Douglas, Prof. Knud Faber, Sir William Hale-White, Prof. Jan van der Hoeve, Mr. R. G. Hogarth, Dr. William Hunter, Prof. Otto Meyerhof, Prof. T. H. Milroy, Sir Berkeley Moynihan, Prof. Otto Naegeli (in absentia), Sir John Parsons, Sir Humphry Rolleston, Prof. G. F. Still, Prof. W. S. Thayer, Mr. Wilfred Trotter, Dr. T. M. Tuffier, and Sir Almroth Wright.

The University Court has received the resignation of Prof. G. Lovell Gulland from the chair of medicine.

SCOTTISH BOARD OF HEALTH.—The Board has appointed Dr. Alexander James Muirhead and Dr. Hugh Miller to be district medical officers (medical referees). Both Dr. Muirhead and Dr. Miller have been for some years engaged in private and panel practice.

THE HOMŒOPATHIC CONGRESS.—The ninth quinquennial Congress of Homœopathic Practitioners was held recently in London. Medical men and women from North and South America, India, and from many European countries were present, and medical, surgical, and special subjects were discussed in 12 different sections, some 70 papers being read in English, French, and German. The treatment of cancer was discussed by many speakers, and it was agreed that recovery from the disease may occur without surgical intervention. The view was generally adopted that some constitutional condition underlies and precedes the local lesion and that medicinal treatment, to have prospect of success, must stimulate the body to supply the necessary antidotal or protective substances.

THE LATE DR. H. C. NIXON.—The death is announced of Dr. Horace Clulow Nixon, physician to the Royal Mineral Water Hospital, Bath, and late medical superintendent of the Ministry of Pensions Hospital, Harrogate. Born at Leek in Staffordshire in 1877, he was the son of Benjamin Barlow Nixon, and was educated at Sedbergh School, St. Bartholomew's Hospital, and the Universities of Dublin and Edinburgh. Graduating M.B. Edin. in 1900, he became assistant demonstrator of pathology in the University, and later house surgeon at Huddersfield Royal Infirmary. Thence he went to the North Staffordshire Infirmary, where he worked until 1905. In 1904 he proceeded to the M.D. degree with commendation. During the late war he served as surgeon in the navy, and he afterwards was medical officer in charge of out-patients at Edmonton Military Hospital. He went to Bath from Harrogate about three years ago. Dr. Nixon was an accomplished pianist and composed songs and pianoforte music under the name of Horace Clulow. He leaves a widow and a youn daughter.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special course in Diseases of Infants has been arranged by Dr. Eric Pritchard to take place at the Infants Hospital from August 8th to 21st, and will occupy each afternoon from 2 P.M. On both Saturdays and on one Sunday special visits to institutions have been arranged. From August 29th to Sept. 10th an all-day course will be held at the Queen Mary's Hospital, Stratford, including demonstrations of medical, surgical, orthopædic, and ophthalmic cases, besides operations and lectures. The subjects of special courses in September will be: medicine, surgery, and the specialties at the Westminster Hospital; diseases of children at the Queen's Hospital; psychological medicine at the Bethlem Royal Hospital; ophthalmology at the Royal Westminster Ophthalmic Hospital, and orthopædics at the Royal National Orthopædic Hospital. The Fellowship also arranges a general course of instruction at the associated hospitals; particulars will be sent on request. Copies of all syllabuses and of the *Post-Graduate Medical Journal* (annual subscription 6s., post free) may be had from the Secretary at 1, Wimpole-street, London, W. 1.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### POOR-LAW RELIEF IN WEST HAM.

ON Thursday, July 14th, Mr. BARNES moved:—

"That an humble Address be presented to His Majesty praying that the Order, dated the 17th day of June, 1927, made by the Minister of Health under the Board of Guardians (Default) Act, 1926, and entitled the West Ham Union Default Order (Continuation) Order, 1927, be annulled."

He said that when the Guardians (Default) Act was introduced last year the Minister of Health had proposals before the country for the reorganisation of the Poor-law, and the Minister described the Default Bill as a temporary measure. Now political circumstances appeared to be making the reorganisation of the Poor-law, as far as a new Act of Parliament was concerned, rather remote. Therefore he thought that those who represented the West Ham district were entitled before another six months' period of administration and power were given to the appointed guardians to have a full statement of the Minister's policy, and his views in regard to the Union of West Ham. He wished to submit to the Minister that instead of continuing the board of appointed guardians in this district for a further six months it would be better to have a full and impartial inquiry into the whole of the circumstances.

#### *The Effect on Mothers.*

Mr. GROVES seconded the motion. He said that the reduction in relief granted in West Ham had meant malnutrition in mothers, and the fever hospital was full. The list of women waiting to enter the sanatorium was very much greater at this moment than before. Dr. and Mrs. Watkins, and the matron, Miss Davis, of the Plaistow Maternity Home, stated that since the reduction of relief in West Ham the constitutional and physical appearance of the mothers and children attending the Plaistow maternity clinic was obviously a process of deterioration. With regard to infantile mortality up to 1919, West Ham was amongst the highest of the industrial towns in the country. Between 1919 and 1926—in the era of this assumed extravagant Poor-law relief—it was an evident fact that the infantile mortality of West Ham was amongst the lowest of the industrial towns, and since 1926 the rate was steadily moving in the wrong direction. The guardians had presented Report No. 2, in which they indicated that they had reduced the amount of relief per person from 8*s.* 5½*d.* to 5*s.* 6½*d.* per week per head. For the week ending March 19th, 1927, 1007 school-children who previously were fed in their own homes, their parents being in receipt of Poor-law relief, had attended the dining centres connected with the schools because their parents had had their relief drastically reduced by the new board of guardians. Connected with the county borough of West Ham there was a department associated with their clinic and maternity centres where they supplied dried milk, a commodity which was accepted by the Ministry of Health and the medical profession generally as being a very nutritious form of food. To the very poor people they gave away free packets of the dried milk. When the applicants were not destitute they sold the milk at half price, and in many cases where people could afford to pay they sold it at cost price. Some 8402 persons who used to pay the full amount now could not do so, and came to them to obtain the dried milk at half price. There had been 12,150 extra packets of free milk supplied, which cost £607 10*s.*, and 388 additional packets of milk at half price, at a cost of £9 14*s.* As a result of the reduction in the amount of Poor-law relief people had been forced to demand this social service from the county borough of West Ham, and they had incurred, in addition to the £10,988 18*s.* on extra meals supplied, an additional expenditure of £617 4*s.* in supplying dried milk. He did not think that the Minister of Health would dispute the general statements of medical officers of health that it seemed almost impossible to arrest the progress of tuberculosis while unemployment and destitution prevailed in this country. The policy of the present guardians in West Ham was a policy of hardship and a policy of persecution of the very poor.

#### *A Comparison in Vital Statistics.*

Miss SUSAN LAWRENCE said she was going to make a comparison in vital statistics between West and East Ham,

| Year. | London. | West Ham. | East Ham. | Year. | London. | West Ham. | East Ham. |
|---|---|---|---|---|---|---|---|
| 1919 | 13·6 | 13·3 | 9·9 | 1923 | 11·4 | 10·6 | 9 |
| 1920 | 12·8 | 12·9 | 10·3 | 1924 | 12·2 | 11·5 | 9·8 |
| 1921 | 12·5 | 12·1 | 10·2 | 1925 | 11·9 | 10·8 | 10·2 |
| 1922 | 13·5 | 13·3 | 11 | 1926 | 11·4 | 10·6 | 9·4 |

London, and Kensington. The general death-rates for London, West Ham, and East Ham for a period of eight years were shown in the table given above.

All through these eight years West Ham, with its desperate poverty, was only once above the London general death-rate per 1000, and East Ham had always been below it. She would take a much more sensitive figure—the rate of infantile mortality over the eight years. There was a sudden and beneficent change in the general infantile mortality-rate after the year 1918, and London dropped from 108 to 85. Each year it had gone down with some oscillations, until it had reached 64. During those years West Ham was only three times worse than London. East Ham was only once worse than the London level, and that was last year. The figures were:—

| Year. | London | West Ham. | East Ham. | Year. | London. | West Ham. | East Ham. |
|---|---|---|---|---|---|---|---|
| 1919 | 85 | 86 | 69 | 1923 | 61 | 60 | 51 |
| 1920 | 76 | 74 | 60 | 1924 | 69 | 78 | 54 |
| 1921 | 81 | 75 | 63 | 1925 | 68 | 66 | 53 |
| 1922 | 75 | 81 | 62 | 1926 | 64 | 56 | 68 |

It would be seen that 1926 was the first year in which East Ham was above the London figure, and that was due to an extraordinary first quarter, when the infantile mortality touched the unprecedented figure of 97. Considering the richness of London it was a miraculous thing that West Ham should be so often a little below the London average. Now she would take Kensington, and ask the House to note how the West Ham mortality figures under their guardians and their town council compared with those of Kensington:—

| Year. | West Ham. | Kensington. | Year. | West Ham. | Kensington. |
|---|---|---|---|---|---|
| 1919 | 86 | 102 | 1923 | 60 | 70 |
| 1920 | 74 | 83 | 1924 | 78 | 75 |
| 1921 | 75 | 107 | 1925 | 66 | 79 |
| 1922 | 81 | 84 | 1926 | 56 | 61 |

According to the figures of the medical officer of health for Kensington the death-rate in North Kensington in 1922 was 91; in 1923 in West Ham it was 60, and in North Kensington 86: in 1924 the figure for West Ham was 78, and in North Kensington 87. In 1925 in West Ham the figure was 66, and in North Kensington 88. In 1926 the figure for West Ham was 56, and for North Kensington 79. West Ham was a district which bordered on the river, and some of it had been reclaimed from the river, and even now it was flooded at certain times, whilst North Kensington was situated in a healthy district. The only thing in which they could say that West Ham was better off than North Kensington was that it used to have guardians who did look after the poor, and the only difference was in the scale of relief which had been adopted. She had shown that the rate of infantile mortality in West Ham over a long period had been very unsatisfactory. The figures for the last two quarters of 1926 did not show any very great change, the West Ham figures following the London figures at a rather increasing distance. Taking the quarter ended in September, 1925, in London the infantile mortality was 55, and in the quarter ended September, 1926, it was 53. In West Ham it dropped with London from 59 in September, 1925, to 55 in September, 1926. In the last quarter of 1925 the figure in London was 88, and in the last quarter of 1926 it was 74. In West Ham it was 72 in the last quarter of 1925, and 69 in the last quarter of 1926. The Registrar-General's figures for the spring quarter showed a rise of five points in the infantile mortality over the whole of London, as compared with the corresponding quarter ending on March 31st, 1926. The figure was 71 in March, 1926, and 76 in April, 1927. The West Ham figures however, according to the Registrar-General, showed a jump of 33 points, the infantile mortality in West Ham in the quarter ending on March 31st, 1926, being 56, while in the quarter ending on March 31st, 1927, it was 89. That was a terrific jump. In East Ham there was a phenomenal first quarter in 1926, with a mortality of 97. A year before it was only 58 in the corresponding quarter, and this year it was 98. She knew how difficult it was to deal with infantile mortality figures over a short period, and that one ought to be extremely cautious in drawing any conclusion. There did not seem to be any general disturbing cause, such as the weather, or the London figures would have shown it. Nor could she find any evidence of infantile epidemics sufficient to account for it. It seemed to her highly probable that the restriction of relief had made the mothers in much worse case to face confinement and birth than they were a year ago. That view was somewhat confirmed by the officers of the infirmary. What she was asking was that the Minister should grant an inquiry. She had given the gross infantile mortality figures. The real index, however, was not the deaths under 1 year, but the deaths under 1 month and under 1 week. If they could have those, and add to them the figures for stillbirths and miscarriages for the period, they would get what was the most sensitive index of all—namely, the condition of the mothers at the time when they came to bring forth children. She urged that they should have a really scientific investigation, showing the effect of liberal relief and of restricted relief.

*The Reply of the Minister of Health.*

Mr. CHAMBERLAIN, replying to the debate, said it was quite true that West Ham in the past had a very good record in the matter of vital statistics, and he was disposed to take the infantile mortality-rate as a very fair measure of the general condition, not merely of the infant population, but of the population as a whole. It was quite true that for some considerable time the infantile mortality-rate in the West Ham Union had been well below 105 of the big towns in the whole of Great Britain. In January of this year the rate in the great towns was 100, and in West Ham it was 91. In February the figure was 114 in the great towns and only 94 in West Ham. In March the figure for the great towns was 87, and 84 in West Ham. Only in one month—April—were the figures in West Ham actually higher than in the great towns. He thought they were 74 for the great towns and 82 for West Ham. Hon. Members had evidently done hard labour to try to find some cases which would throw discredit on the West Ham guardians. Yet they had been extraordinarily unsuccessful. The charges which had been made against the guardians had not been substantiated. The old guardians were done away with because they were no longer able to perform their functions for financial reasons. When they got a saving at the rate of nearly £1,000,000 a year without inflicting any serious hardship or injury on any deserving person, it seemed to him that they had shown to demonstration and beyond the possibility of contradiction that the condition of the Union was due not to the circumstances, bad as they might be, in which it found itself through exceptional unemployment and the want of any large section of well-to-do people, but to methods which were quite unnecessary and which had gradually led to general demoralisation. Under the new guardians the examination of individual cases was done with a care which was entirely new to West Ham, and the relief which was given was adapted to the needs of the individual instead of being given indiscriminately. Improved accommodation had been provided for the hospital staff, workshops had been provided for the training of mental defectives, and consideration was now being given to the treatment and the nursing of the sick poor in their own homes. It was quite clear that if the present guardians were removed from office and they returned to the system of election they would return again to the chaos and demoralisation which existed before. Such a reactionary step would be a disaster for West Ham.

The motion for the Address was negatived by 170 votes to 68.

## HOUSE OF LORDS.

MONDAY, JULY 18TH.

MEDICAL AND DENTISTS ACTS AMENDMENT BILL.

The Earl of PLYMOUTH (Captain Gentleman-at-Arms), in moving the second reading of the Medical and Dentists Acts Amendment Bill, said that as a result of the establishment of the Irish Free State, and of the legislation consequent thereon, medical students of universities in the Irish Free State graduating after December 6th, 1922, ceased to be entitled to registration as a right by the General Medical Council (that was, they ceased to be entitled to practise in this country), and the General Medical Council ceased to have any authority over the medical profession and any control over medical education in the Irish Free State. That state of affairs was regarded by the authorities both in the Irish Free State and in this country as undesirable; and at the request of the Irish Free State Government negotiations were begun in 1923 with a view to the restoration, as far as was consistent with the altered status of the Irish Free State, of the position existing prior to the establishment of the Irish Free State. Meanwhile, the General Medical Council agreed to continue to enter medical graduates from the Irish Free State on the register pending the passage of such legislation as it might eventually be decided to introduce. But all such registrations since December 6th, 1922, had no legal validity, and one of the objects of the present Bill was to validate them. The negotiations referred to had for various reasons been prolonged; but they had at length resulted in the agreement which appeared as Part I. of the schedule to this Bill. Sir Donald MacAlister, the President of the General Medical Council, had taken a prominent part in all the negotiations, and the agreement

had the concurrence and support of the Council. It would also be observed that the agreement had been signed by Sir Richard Dawson Bates, Minister of Home Affairs, on behalf of Northern Ireland. The agreement provided for the creation of a Medical Council in the Irish Free State which would establish an Irish Free State Register (to which all medical practitioners registered in this country and Northern Ireland would be admissible as of right) and would have complete control of that register and of the profession in the Irish Free State. On the other hand, the General Medical Council would continue to admit to the United Kingdom Register all persons who, prior to the establishment of the Irish Free State, would have been admissible thereto in respect of qualifications obtained in the Irish Free State, and for the purpose of keeping the United Kingdom Register and controlling the examinations giving the right of admission thereto the Council would retain in the Irish Free State, all the powers formerly possessed by them. Certain alterations in the Irish representation on the Council consequential on the establishment of the Irish Free State were made by Article 2 of the agreement.

*The Dental Agreement.*

On the completion of the medical negotiations, said the Earl of Plymouth, discussions were opened regarding the dental profession, in which an almost precisely similar state of affairs had arisen. Sir Francis Acland, chairman of the Dental Board of the United Kingdom, took part in the discussions, and no difficulty was found in reaching an agreement very similar to the medical agreement. That agreement would be found in Part II. of the schedule. Both agreements required legislation both in the Irish Free State Parliament and in the British Parliament. An Act confirming the medical agreement had already been passed in the Irish Free State and had received Royal Assent, and it was very desirable that the agreement should be brought into force as soon as possible by the passage of this Bill. The Irish Free State Bill to confirm the dental agreement had not yet been passed into law, but it was anticipated that it would be reintroduced and passed into law at an early date. The Irish Free State legislation, in addition to confirming the agreements, had to provide for the establishment of the new medical and dental authorities in the Irish Free State; it was therefore much longer and more complicated than the present Bill, and for that reason had been divided into two Bills. There was no necessity for a similar division of the legislation on this side.

The Bill was read a second time.

POLLUTION OF RIVERS.

Lord MILDMAY OF FLETH called attention to the position in relation to the pollution of rivers. He said that on Feb. 15th last the Lord President of the Council on behalf of the Prime Minister received a very representative deputation which approached him with a view to impressing upon the Government the necessity of dealing with the growing menace of river pollution. Their case in effect urged what had been proposed over and over again by many Royal Commissions and committees for 50 years past. They asked that a central authority should be established to control inland waters and that local river boards should be created in support of that central authority. They also urged the necessity for scientific research designed to solve the innumerable problems attendant on the abatement of pollution. The deputation was organised by a joint committee of the British Waterworks Association and the Salmon and Trout Association, but the two associations were supported by many other bodies, including the National Association of Fishery Boards, the Association of Medical Officers of Health, the Federation of British Industries and the Federation of British Anglers, the Council for the Preservation of Rural England, and the Pure Rivers Society.

*Two Methods of Attacking the Problem.*

The Earl of BALFOUR, Lord President of the Council, said the Government were entirely in agreement with Lord Mildmay that the pollution of rivers was a great evil and an evil which was increasing. Population was growing, and with population inevitably came the difficulties of sewage. The habits of the people were altering, and they were altering in a manner which, very admirable in itself, inflicted a greater and greater strain on the water-supplies of the country. The pollution from manufacturing sources was augmented at the same time. There were only two possible means, so far as he was aware, by which this embarrassing problem could be attacked. One was increased efficiency of administration, and the other was increased knowledge. The Government proposed to do all they could to further the first method of attack. In many cases it was quite impossible to give a decision in favour of the purity of rivers and against the continuance of manufactures. It was on the manufactures that the population lived. The only possible way of dealing with the situation was to find some scientific method by which they would be able to get over the difficulty which was presented not by the weakness of the law, but by the difficulty of dealing with the laws of nature. He entirely agreed, however, that more coöperation was required, and that it was well worth considering whether the present system of river boards administration might not be extended with advantage, and that possibly fresh legislation, or whether the amendment of existing legislation, might be carried through. The body which was to deal with that should not be a departmental body, but an inter-departmental body. It could not be an executive body, as some of his noble friend's supporters would desire. That would mean a new Government Department with a Minister responsible to Parliament. But the Government did think that there should be an advisory committee representing the Ministry of Health and the fishery boards, and they had already decided on the chairman of that Committee, Sir Horace Monro. The Committee would set to work to deal in an advisory capacity with new legislation, with setting up new river boards, with inducing responsible local bodies to coöperate with each other and with carrying out all those admirable objects on which his noble friend had dilated. But do not let their Lordships suppose that nothing was being done, or had been done, to diminish the curse of polluted rivers. The worst of all the sources of pollution was sewage, and he was informed that in the financial year ended March 31st last loans were sanctioned by the Minister of Health of no less than £2,500,000, not for dealing with sewage as a whole, but for diminishing the sources of sewage. Authority was given for loans amounting to £5,000,000 to deal with sewage, and one-half of that sum had been devoted to the purpose of preventing sewage from further polluting the rivers of this country. He hoped and believed that their knowledge of how to deal with the greatest of all the evils—namely, sewage—was increasing. There was a Royal Commission which before the war made a very large number of reports, and made special mention of a method of dealing with sewage called by the somewhat unattractive name of activated sludge, which they were of opinion was of great promise. It had been largely used in the Birmingham area and elsewhere. There still remained much to be done in bringing that process, and perhaps others, to the point of success, but on the Committee dealing with the scientific and research side of this problem, which was being set up by the Government, the gentleman who was at the head of the admirable work done in the Birmingham district would find a place.

*The Scientific Research Committee.*

He could give the names of those who would form the Scientific Research Committee. They were: Sir Robert Robertson, K.B.E., F.R.S., Prof. V. H. Blackman, F.R.S., Prof. F. G. Donnan, C.B.E., F.R.S., Sir Alexander Houston, K.B.E., C.V.O., Mr. H. C. Whitehead, M.I.C.E., and Dr. C. Bourne, F.R.S. To these gentlemen would be added as assessors Mr. H. G. Maurice, C.B., Ministry of Agriculture and Fisheries; Mr. W. L. Calderwood, F.R.S.E., Fishery Board for Scotland; Mr. D. Ronald, M.I.C.E., F.R.S.E., Scottish Board of Health; and Mr. R. J. Simpson, O.B.E., Ministry of Health. The Director was Dr. H. T. Calvert, M.B.E., who was, he supposed, the highest authority on this kind of investigation that they possessed. That Water Pollution Research Board was actually at work. Research was also going on in Germany and America and also in Holland and other countries. The new Board would see that all the information which was of value was distributed to the authorities who were responsible for the purity of our streams.

TUESDAY, JULY 26TH.

*Bills Advanced.*

The Midwives and Maternity Homes (Scotland) Bill and the Medical and Dentists Acts Amendment Bill were read a third time and passed.

## HOUSE OF COMMONS.

WEDNESDAY, JULY 20TH.

*Tuberculosis among Slate Quarrymen.*

Sir ROBERT THOMAS asked the Home Secretary whether his attention had been drawn to the far higher percentage of tuberculosis among slate quarrymen working in sheds, as compared with those employed in the open air, owing to the injurious effect of dust in confined spaces; and whether he would approach quarry owners with a view to devising practical means of improving conditions.—Sir BURTON CHADWICK (Parliamentary Secretary to the Board of Trade) replied: The report of a recent inquiry carried out under the Welsh Board of Health among slate quarrymen and slate workers in the Gwyrfai Rural District, states that slate workers in sheds there are exposed to injurious dust, and that mortality from tuberculosis is higher among such workers than among quarriers. My right hon. friend is considering, with his Health Advisory Committee, the

suggestions in the report for further investigation, and meanwhile the question of improving conditions has been taken up with the slate quarry owners by H.M. inspectors.

*Birth-rate in London Boroughs.*

Sir WILLIAM DAVISON asked the Minister of Health the birth-rate per 1000 in each of the London boroughs for the years 1901, 1911, 1925, and 1926 respectively.—Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) replied: The following figures give the birth-rate per 1000 population in metropolitan boroughs for 1926:—

| Borough. | 1926. | Borough. | 1926. |
|---|---|---|---|
| City of London .. .. | 8·0 | Kensington .. .. | 15·1 |
| Inner and Middle Temple | 6·9 | Lambeth .. .. .. | 17·2 |
| Battersea .. .. | 17·3 | Lewisham .. .. | 15·4 |
| Bermondsey .. .. | 20·7 | Paddington .. .. | 15·4 |
| Bethnal Green .. .. | 20·9 | Poplar .. .. .. | 21·6 |
| Camberwell .. .. | 16·6 | St. Marylebone .. .. | 12·8 |
| Chelsea .. .. .. | 13·3 | St. Pancras .. .. | 16·7 |
| Deptford .. .. .. | 18·2 | Shoreditch .. .. | 23·3 |
| Finsbury .. .. .. | 20·6 | Southwark .. .. | 20·2 |
| Fulham .. .. .. | 16·3 | Stepney .. .. .. | 19·7 |
| Greenwich .. .. | 17·7 | Stoke Newington .. | 15·6 |
| Hackney .. .. | 17·3 | Wandsworth .. .. | 14·3 |
| Hammersmith .. .. | 16·3 | Westminster .. .. | 11·3 |
| Hampstead .. .. | 12·3 | Woolwich .. .. | 16·8 |
| Holborn .. .. .. | 12·4 | Administrative County of London .. .. | 17·1 |
| Islington .. .. | 18·5 | | |

*Birth-Rates in Europe.*

Sir WILLIAM DAVISON asked the Minister of Health the birth-rate per 1000 in Great Britain and for the principal countries in Europe for the last year in respect of which statistics were available.—Sir KINGSLEY WOOD replied: The following figures give the birth-rate per 1000 population:—

| | | | | | |
|---|---|---|---|---|---|
| Gt. Britain .. | 1926 .. | 18·1 | Nether ands | 1926 .. | 23·8* |
| | 1925 .. | 18·6 | Belgium .. | 1925 .. | 19·6 |
| England and Wales .. | 1926 .. | 17·8 | Spain .. .. | 1925 .. | 29·4* |
| | 1925 .. | 18·3 | Hungary .. | 1926 .. | 26·7* |
| Scotland .. | 1926 .. | 20·9 | Czechoslovakia | 1925 .. | 25·1 |
| | 1925 .. | 21·3 | Austria .. .. | 1924 .. | 21·7* |
| Sweden .. | 1926 .. | 16·9* | Italy .. .. | 1925 .. | 27·5* |
| France .. .. | 1926 .. | 18·8* | Bulgaria .. | 1924 .. | 39·7* |
| Finland .. | 1925 .. | 22·3 | Norway .. .. | 1925 .. | 20·0 |
| Germany .. | 1925 .. | 21·3 | R.S.F.S. de la Russie† | 1924 .. | 43·6* |
| Denmark .. | 1924 .. | 21·9 | R.S.S. de l'Ukraine‡ | 1923 .. | 35·4 |
| Switzerland .. | 1925 .. | 18·4 | | | |

* Provisional.

† Republique Socialiste Federative Sovetique de la Russie. These are the only parts of Russia in Europe for which figures are available.

‡ Republique Socialiste Sovetique de l'Ukraine.

*One-Apartment Houses in Scotland.*

Mr. BUCHANAN asked the Secretary of State for Scotland the total number of one-apartment houses built in Scotland and the total number of two-apartment houses built since 1919.—Sir J. GILMOUR replied: As at June 30th last no one-apartment houses and 7222 two-apartment houses were built in Scotland since 1919 under State-assisted housing schemes. No reliable information is available as to houses of one and two apartments built without State assistance during that period, but such information as I possess indicates that the number is very small.

# Appointments.

BLACKSTOCK, W. P., M.B., Ch. B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Cottingham District of the County of Northampton.

MURRAY, J. DOUGLAS R., F.R.C.S. Eng., Resident Medical Officer, Bolingbroke Hospital Incorporated, Wandsworth Common.

RUSSELL, V. I., M.D., B.S. Lond., Obstetrician to the Elizabeth Garrett Anderson Hospital.

WHISHAW, E. M., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Lond., Assistant Pathological Chemist to St. Mary's Hospital.

Westminster Hospital: HODGES, R. C., M.B., B.Ch. Oxf., L.R.C.P., M.R.C.S. Lond., House Physician: EVANS, E. C., M.R.C.S., L.R.C.P. Lond., STANTON, R., M.R.C.S., L.R.C.P. Lond., House Surgeons.

# Vacancies.

*For further information refer to the advertisement columns.*

*Association of Surgeons of Great Britain and Ireland, 51, Wimpole-street, W.*—Surgical Scholarship. £350.

*Barbados, B.W.I., Parish of St. Andrew.*—M.O. £300.

*Beckenham Urban District Council.*—M.O.H. and School M.O. £900.

*Birmingham, Selly Oak Hospital.*—Med. Supt., &c. £1000.

*Bolingbroke Hospital, Wandsworth Common, S.W.*—H.S. At rate of £120.

*Bradford, Municipal General Hospital, St. Luke's.*—H.P.'s and S.'s. Each at rate of £200.

*Brighton, Royal Sussex County Hospital.*—Hon. Dermatologist.

*Carmarthen, Joint Counties Mental Hospital.*—Sen. Asst. M.O. £450.

*Charing Cross Hospital, W.C.*—Res. M.O. £400.

*Colchester, Essex County Hospital.*—H.S. £150–£200.

*Colindale Hospital, Hendon, N.W.*—Jun. Asst. M.O. £500.

*Coventry and Warwickshire Hospital.*—Two Res. H.S.'s. Each £125.

*Dunedin, New Zealand, University of Otago.*—Sen. Demonstrator in Dept. of Pathology. £400–£500.

*Fiji Government.*—Dist. M.O. £500.

*Greenock Corporation.*—M.O.H. £1000.

*Hereford, Herefordshire General Hospital.*—H.S. £150.

*Hove Hospital, Sussex.*—Res. M.O. £150.

*Hull Royal Infirmary.*—Asst. H.S. £150.

*Hull Royal Infirmary.*—Cas. H.S. At rate of £150.

*L.C.C. Public Health Dept.*—Asst. Aurist. £240 9s. 2d.

*Manchester, Ancoats Hospital.*—Res. Surg. O. £200.

*Manchester Ear Hospital, Grosvenor-square.*—H.S.

*Manor House Hospital, Golders Green, N.W.*—H.S. At rate of £200.

*Northamptonshire County Council.*—Tuberculosis O. £750.

*Plymouth, Homœopathic and General Hospital.*—H.S. At rate of £100.

*Queen's Hospital for Children, Hackney-road, E.*—Cas. O. At rate of £100.

*Royal Free Hospital, Gray's Inn-road, W.C.*—Cas. O. At rate of £150.

*Scarborough Hospital and Dispensary.*—Two H.S.'s. At rate of £126 each.

*Sheffield Royal Hospital.*—Res. Surg. O. £200.

*Southampton, Royal South Hants and Southampton Hospital.*—Sen. H.S. £200.

*Staffordshire County Council, County Laboratory, Lichfield.*—Bacteriologist (Locum Tenens). £10 10s. weekly.

*Swansea Hospital.*—H.S. £150.

*University of London, University College.*—Asst. in Dept. of Physiology. £250–£300.

*West Ham Union.*—Two Dist. M.O.'s and Pub. Vaccs. Each £800.

THE Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Morley, York, W.R.; Deal, Kent; and Holt, Norfolk.

# Births, Marriages, and Deaths.

## BIRTHS.

LUMSDEN.—On July 12th, at Ravensholme, Staines, the wife of Alexander Gow Lumsden, M.B., Ch.B., of a daughter.

MACKIE.—On July 13th, at Thornyhill, Malvern, the wife of Dr. George Mackie, D.S.O., T.D., of a daughter.

## MARRIAGES.

BUTTER—LAING.—On July 19th, at Bridge of Allan, A. J. M. Butter, M.A., M.D., of Highgate, London, to Ena M. Laing, M.B., Ch.B., of Alloa, Scotland.

HOWE—REIS.—On July 21st, at All Saints Church, Friern Barnet, Wilfred Fildes Howe, L.D.S. R.C.S., to Dorothea Harriett Reis, niece of F. E. W. Nichols, of North Finchley.

STADDON—PEARCE.—On July 20th, at St. John's Church, Ipswich, Lt.-Col. Henry Ernest Staddon, R.A.M.C. (retd.), to Winifred, widow of A. J. Pearce, of Ipswich.

## DEATHS.

BROOKFIELD. — On July 19th, at his residence, Phillimore-gardens, Kensington, John Storrs Brookfield, M.D., J.P., aged 82.

DAVIES.—On July 18th, in London, John Morgan Lloyd Davies, M.D., J.P., of Glanafon, Haverfordwest, aged 71.

EARLE.—On July 20th, at Sion-hill, Bath, Leslie Meredith Earle, M.D.

SCALES.—On July 6th, 1927, at 14, Northdown-avenue, Margate, Cedric Kennedy Scales, M.B., B.S. Lond., aged 32. He suffered much pain and with knowledge displayed the utmost fortitude.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Medical Diary.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, August 2nd.—3.15 P.M., Mr. C. S. Lane-Roberts: Abdominal Pain in Pregnancy.

## INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

# Notes, Comments, and Abstracts.

## BASUTOLAND: A YEAR'S PUBLIC HEALTH WORK.

Mr. R. B. Smith, Government Secretary, has presented his report on the affairs of Basutoland for the year 1926. The area of the territory, which is bounded on the west by the Orange Free State, on the north by the Orange Free State and Natal, on the east by Natal and East Griqualand, and on the south by the Cape Province, is given as 11,716 square miles. The altitude varies from 5000 ft. to 11,000 ft. above sea-level, and the climate is, on the whole, healthy. In 1818 the first Paramount Chief, Moshesh, gathered together the remnants of the various tribes which had been scattered about South Africa during the wars waged by Moselekatse and thus founded what to-day has become the Basuto nation, consisting of upwards of 540,000 souls. The territory has since 1884 been governed by a Resident Commissioner under the direction of the High Commissioner for South Africa. There were no faction fights of a serious nature during the year under review, but considerable friction continues to exist in the Leribe District, due in a measure to Chief Jonathan's great age and inability to attend to disputes amongst his people. The territory again suffered from severe drought which occurred during the latter portion of the year. During 1926 2287 patients were treated in the hospitals, showing an increase of 66 over the numbers of the previous year. The deaths numbered 123 and the operations performed totalled 2250. In the dispensaries 61,802 patients received treatment, being an increase of 2273 over the figures of 1925. There is little noteworthy to report as regards the health of the territory; it has been very good on the whole. There were no serious outbreaks of epidemic disease. Influenza was more prevalent than in 1925 and was responsible for 985 cases, but with no deaths. There were two sporadic outbreaks, 32 cases occurring with five deaths, and five cases of cerebro-spinal fever were reported with one death. Fevers of the enteric group were few in number; only 70 were reported, and the disease was of a mild type. The majority of the patients who come to the hospitals do so for surgical aid. For medical treatment they prefer dispensary treatment, after which they return to their homes. The bulk of the dispensary patients seek treatment for gastro-intestinal, venereal, respiratory, genito-urinary, and skin diseases. The free treatment of syphilis continues, and more patients are coming every year to avail themselves of this privilege. Sanitation to any extent is only possible in the Government Reserves. Maseru is the only proclaimed sanitary area, but it is hoped to bring in Leribe during next year. Plague being endemic in the neighbouring territories, three rodent destruction gangs have been constantly employed in the Maseru, Leribe, and Mafeteng districts. Considerable progress has been made in the destruction of veldt rodents, but in the townships the position is not so satisfactory on account of most buildings not being rat-proof. Every endeavour is being made to cope with the pest.

There was an increase of 33 in the population of the Leper Asylum, which, on Dec. 31st, 1926, stood at 494. There were 42 deaths during the year; seven males and one female deserted, and four males and four females were discharged.

## EXERCISES FOR THE INFANT.

ALAS for the twentieth century baby! The physio-therapeutist does not spare him even at the tender age of 5 months. It appears that in Germany and in Austria there have for some time past been enthusiasts who think that the natural instincts of infants cannot be trusted to develop their muscles adequately. It has long been thought desirable by some to teach children and young persons how to breathe, and now nature can apparently no longer be trusted to show babies how to kick and crawl and bawl. Dr. Wilkes is in the proud position of having written the first book in English on this branch of the subject,[1] and no doubt he will have pleased many mothers by giving them an increased sense of importance and by indulging their laudable desires to be of use. We do not suppose that such exercises as are here described and depicted will do a healthy child any harm as long as they are carried out with discretion and restraint, but we think that any such infant would achieve the same ends on his own initiative by measures which he would find far more congenial. The illustrations and descriptions are clear and the folder, showing 12 exercises, intended to be pinned up on the nursery wall, will no doubt be a useful guide. Nevertheless, we feel that for healthy babies in their own houses such treatment is unnecessary, however much some artificial aid may be desirable for infants confined in cribs in hospital. Yet since confined infants are presumably sick, much care and supervision is necessary even there, if harmful results are not to follow.

[1] Baby's Daily Exercises: A Manual of Exercises for Infants from Five Months to One Year of Age. By Edward Theodore Wilkes, B.S., M.D., Assistant Pediatrician, Out-patient Department, New York Nursery and Child's Hospital. New York: D. Appleton and Company. 1927. Pp. 25+x. 4s. 6d.

## A NEW CHLOROFORM INHALER.

THE Chiron chloroform inhaler, which we illustrate below, is designed to make it impossible for liquid chloroform to

FIG. 1.—The chloroform inhaler.

be pumped to the patient, and it achieves its object absolutely. The two means by which the accident of emitting liquid chloroform has arisen are: (1) by instruments being faultily put together, the exit tube being attached to the fitting meant for the pump, and vice versa; (2) by too much chloroform being put into the instrument. These two sources of danger cannot arise when the Chiron inhaler is used. An ingenious arrangement renders over-filling impossible, and the double bottle makes it a matter of indifference to which side the pump is attached. The apparatus is a little cumbrous to be hung from a buttonhole or used from the pocket, but a safe stand could easily be made to hold the bottles on the anæsthetist's table. We have found that the instrument can be implicitly trusted to prevent the accident against which it is designed.

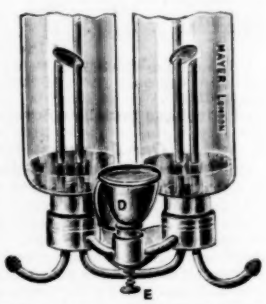


FIG. 2.—The apparatus charged in an inverted position.

The apparatus may be obtained from Messrs. Meyer and Phelps, 59-61, New Cavendish-street, W. 1.

## THE HOSPITAL ALMONER'S SERVICE TO THE BLIND.

NOWHERE is the work of the hospital almoner more useful than in connexion with blind and partially blind patients. From the report of the work of the social service department at Moorfields Eye Hospital we learn that the Samaritan Fund is used only for urgent or exceptional cases, and that the main function of the almoner is to establish personal relations with those patients who are in difficulties, giving information, where needed, about blind societies, myope schools, convalescent homes, and so forth. To those patients who are members of societies granting "ophthalmic benefit," the working of the scheme is explained and the patients are referred back to those approved societies which have agreed to grant an ophthalmic surgeon's fee. In some instances the advice given is more difficult. A case is cited where a young man was in the depths of despair on finding that he was suffering from an incurable hereditary disease which must inevitably lead to blindness. Partly owing to the sympathetic coöperation of the almoner he seems to have discovered that life is still worth living. Nor is the benefit always to the patient alone. In this case the almoner was able to collect details of the family history which were of considerable interest to the surgeon.